

BEST PRACTICES IN STATEWIDE FREIGHT PLANNING

Requested by:

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1.0 Introduction

1.1 Background

In the Intermodal Surface Transportation Efficiency Act (ISTEA, enacted 1991) and the Transportation Efficiency Act for the 21st Century (TEA-21, enacted 1998), Congress encouraged the consideration of freight movement during statewide transportation planning processes. Congress emphasized the importance of freight movements because it had seen the impressive improvements in carrier productivity that resulted from deregulation of the freight transportation industry in the late 1970s and early 1980s and understood the opportunities that a cost-efficient and competitive transportation system created for trade and economic development. Deregulation had freed the freight transportation industry from many modal and jurisdictional barriers resulting in the creation of new, innovative services and increased productivity. By encouraging cross-modal coordination, Congress hoped to catalyze another advance in national freight productivity.

Freight was included among the planning factors in TEA-21, which helped focus Federal, state, and metropolitan planning organization (MPO) attention on freight issues. There is a growing awareness at the state, metropolitan, and local levels of the importance of freight transportation and a corresponding push to link state and local transportation investment, especially freight transportation investment, to economic development. State departments of transportation (DOT), MPOs, and business leaders are much more mindful today of the need to maintain and improve the productivity of the transportation system as a strategic competitive advantage than they were 10 or 20 years ago. The lessons learned from the rapid expansion of the domestic economy over the last decade, the challenges of global economic competition, and the prospect of losing market advantage in a recession have brought home the message that the freight transportation system, as much as land cost, labor availability, and tax policy, is critical to economic success.

In response to these and other influences, states have developed successful freight planning programs, which take different forms. Many states address freight issues generally as part of their long-range planning efforts. Some states take a more active approach by building statewide pictures of freight movement through the development of stand-alone, integrated, multi-modal freight plans. Still others have begun to develop analytical tools or freight data collection programs to develop freight performance measures or to help guide freight policy and transportation investment decisions. This guidebook describes a variety of freight planning techniques used by states to address different freight needs and issues, ranging from low-cost, easily implementable activities, such as private sector outreach or the incorporation of freight into existing long-range plans; to high-cost, more intensive freight planning methods, such as the development of freight demand models or the completion of multi-jurisdictional freight plans and studies. As a result, the best practices in statewide freight planning described in this guidebook will be useful for states to enhance their existing freight planning programs or to guide the development of freight planning programs in states that may be new to freight planning.

1.2 Objectives of This Guidebook

The objectives of this guidebook are as follows:

- **To describe the elements that make up a statewide freight planning program.** Statewide freight planning activities come in many different shapes and forms. However, there are several common elements that generally make up a statewide freight planning program, each of which provides a critical input to the success of the overall program. A review of the different freight planning elements and a discussion of how states mix and match these elements to create unique, responsive statewide freight planning programs will be helpful to states that may be relatively new to this area;
- **To discuss issues and problems in how existing planning processes address current freight needs.** There are several issues which, individually and in combination, can hinder the ability of state DOTs to more fully incorporate freight interests into their transportation planning programs. By providing a better understanding of these issues, this guidebook aims to help states design or modify freight planning programs to address or avoid the most common pitfalls.
- **To describe best practices in elements of statewide freight planning.** Supported by case study examples, this guidebook describes a variety of best practices in statewide freight planning, taking into account the needs of both small and large states; states with and without international trade gateways; states with highly urbanized or rural populations; and states with diverse mixes of industry types and economic bases. Through these case studies, this guidebook also describes the critical factors that contribute to the success of these efforts.
- **To describe the key considerations that make for successful freight planning programs.** The best practices case studies describe the efforts of states in developing individual elements of freight planning programs. The last section of the guidebook provides several detailed case studies describing how some states have strung together these elements to develop continuous, comprehensive statewide freight planning programs.

1.3 Organization and Use of This Guidebook

This guidebook is designed to describe successful freight planning elements and programs of various degrees of complexity and cost for both new freight planning practitioners and for veteran freight planning professionals. The guidebook is organized such that each section is independent of the others and the user is able to read only the section or sections that serve his or her interests. The individual sections that make up this guidebook include:

- **Section 2.0, Components of and Issues in Statewide Freight Planning** – Provides an overview of the individual components that make up a freight planning program (long-range planning, data and tools, organizational structure, private sector outreach, and multi-jurisdictional planning) and describes the issues which can hinder the ability of states to incorporate freight interests into their transportation planning programs;

- **Section 3.0, Best Practices in Statewide Freight Planning** – Describes best practices in each of five statewide freight planning components using case study examples. Table 1.1 lists the case studies included in this section, each of which is briefly summarized at the beginning of each section.
- **Section 4.0, Putting It All Together** – Provides detailed case studies describing how some states have strung together the individual freight planning elements described in Table 1.1 to develop continuous, comprehensive statewide freight planning programs.

Table 1.1 Case Study Examples Included in This Guidebook

Freight Planning Element	Best Practices Case Study Examples	Location within This Guidebook	For Further Information
Long-Range Planning	Texas Transportation Plan Update	Page 3-5	http://www.dot.state.tx.us/tpp/transplan/modal.htm
	New Jersey Long-Range Transportation Plan Update	Page 3-8	http://www.njchoices.com/reports/lrp/lrptoc.pdf
	California Global Gateways	Page 3-10	http://www.dot.ca.gov/hq/tpp/offices/ogm/GGDP_Final_Report.pdf
	Washington Freight Implementation Plan	Page 3-14	http://www.wsdot.wa.gov/freight/ImpPlan.htm
	Maine Integrated Freight Plan	Page 3-19	http://www.state.me.us/mdot/freight/fp2003.pdf
	Impact of Trucks on Ohio's Roadways	Page 3-22	http://www.dot.state.oh.us/planning/Studies/Freight/freight_default.htm
	Regional Economic Effects of the I-5 Corridor/Columbia River Crossing Transportation Choke Points Study	Page 3-25	http://www.i-5partnership.com/reports/index.html
Organizational Structure	Maine Office of Freight Transportation	Page 3-28	http://www.state.me.us/mdot/freight/homepage.htm
	Vermont Agency of Transportation	Page 3-30	http://www.aot.state.vt.us/
Data and Analytical Tools	Oregon DOT Freight Data and Analysis Programs	Page 3-33	http://www.wsdot.wa.gov/freight/default.htm
	Montana Highway Reconfiguration Study	Page 3-36	http://rip.trb.org/browse/dproject.asp?n=6947
	Florida Intermodal Statewide Freight Model	Page 3-39	http://www11.myflorida.com/planning/systems/stm/freight.htm
Private Sector Participation	Florida Freight Stakeholders Task Force	Page 3-43	http://www11.myflorida.com/seaport/freightstakeholdersstatus.htm
	Minnesota Freight Advisory Committee	Page 3-46	http://www.dot.state.mn.us/ofrw/freight.html
Multi-jurisdictional Coordination	FAST Corridor	Page 3-48	http://www.wsdot.wa.gov/mobility/fast/
	Mid-Atlantic Rail Operations Study	Page 3-50	http://www.i95coalition.org/projects/marop.html

Table 1.2 Freight Planning Program Case Study Examples Included in This Guidebook

Best Practices Case Study Example	Location within This Guidebook	For Further Information
California Freight Planning Program	Page 4-2	http://www.dot.ca.gov/hq/tpp/offices/ogm/ogm.htm
Washington State Freight Planning Program	Page 4-4	http://www.wsdot.wa.gov/freight/default.htm

2.0 Components of and Issues in Statewide Freight Planning

2.1 Overview of Statewide Freight Planning Components

Although ISTEA and TEA-21 encouraged states to address freight as part of their general transportation planning programs, the legislation provided little specific guidance to states as to how or to what degree they should consider freight movements. In addition, states have differing perspectives on the need for freight planning and the types of activities required to fully address statewide freight needs. States with major international freight gateways, such as border crossings or deepwater seaports, are often concerned with developing strategies to improve the efficiency of freight movements and mitigate freight impacts; but rural states or states that experience a significant amount of through freight traffic are more interested in linking freight transportation improvements to economic development efforts or in assessing the impacts of through freight vehicles on their transportation infrastructure. Though state DOTs have taken different approaches to freight planning, there are five specific components that generally make up a statewide freight planning program, each of which provides a critical input to the success of the overall program. These core components include:

- **Long-Range Freight Plans** – The long-range planning process lays the groundwork for how a state incorporates freight interests and issues into its planning program. There are many different ways that states incorporate freight into their long-range transportation planning programs. Some states incorporate freight issues into existing long-range transportation plans by adding freight-specific chapters or discussions; others complete stand-alone, integrated multimodal freight plans and studies in order to develop a better understanding of statewide freight movements. Other long-range freight planning techniques include the completion of studies to develop specific policy guidelines for planning analysis, project development and programming; completion of corridor and gateway studies designed to identify issues along key trade corridors; and the development of economic impact and development studies to determine how freight transportation system performance can affect a state's economic competitiveness;
- **Organizational Structure** – The way in which freight planning is organized within state DOTs also affects the success of a statewide freight planning program. Organizational structure influences how internal resources are obtained and utilized and how freight planning at the state level is coordinated with other long-range planning and programming activities;
- **Data and Analytical Tools** – Freight data, analytical tools, and forecasting methods are important inputs to a statewide freight planning process. These resources range from low-cost, quick-response methods to more sophisticated and costly modeling and forecasting techniques: some states have developed freight data collection programs to improve the quality and quantity of freight data available to DOT technical staff; others have developed freight demand models to enhance their ability to understand freight travel patterns and help guide the development of freight improvement projects;

- **Private Sector Participation** – The private sector freight community can provide the background and expertise necessary to guide a successful statewide freight planning program. There are many different approaches used to engage the private sector over the long haul. Some states have formally engaged the private sector through the creation of freight advisory committees or other such groups. Others have developed less formal private sector outreach strategies; and
- **Multi-Jurisdictional Coordination** – Freight movements are increasingly regional, national, and global in nature, often crossing traditional jurisdictional boundaries. Successful freight planning programs require a high degree of coordination with other state agencies, other levels of government, and other state DOTs through cooperative planning activities or multi-jurisdictional coalitions.

Because the need for freight planning varies considerably from state to state, so too do the approaches states have taken to address these needs. There is no single model for a successful freight planning program. Instead, states mix and match freight planning techniques to create unique freight planning programs that are responsive to the needs of individual states. As shown in Table 2.1, states have taken many different approaches to address freight needs.

As can be seen in Table 2.1, several states have undertaken different types of freight planning activities and some have developed successful, continuous freight planning programs. However, there are still several common issues and obstacles that state DOTs have had to address to more fully incorporate freight interests into their transportation planning programs. These issues are described under four broad categories: planning requirements, organizational and procedural issues, data and analytical tools issues, and resource issues.

2.2 Issues in Statewide Freight Planning

2.2.1 Planning Requirements

TEA-21 encourages states and MPOs to consider projects and strategies that “increase the accessibility and mobility options available to people and freight and enhance the integration and connectivity of the transportation system, across and between modes, for people and freight.” However, TEA-21 provides little specific guidance as to how or to what extent states should consider freight interests when developing their transportation plans.

2.2.2 Organizational and Procedural Issues

The process for planning and programming transportation improvement projects has proven to be effective in the identifying and implementing traditional transportation improvement projects, though it does include some limitations that can prevent freight interests from being fully addressed, including:

Table 2.1 Representative Freight Planning Activities of States

State	Incorporating Freight into Long-Range Planning Process					Organizational Structure	Data and Analytical Tools		Private Sector Participation		Multi-Jurisdictional Planning
	Freight in Long-Range Plan	Stand-Alone Freight Plan	Freight Policy Plan	Corridor/Gateway Study	Freight/Economic Dev. Study		Freight Data Collection Program	Freight Model	Freight Advisory Committee	Other Private Sector Outreach Efforts	
OR	●		●	●	●						●
VT		●	●							●	●
CT	●			●							●
MD	●	●									●
WI					●						
PA	●								●		●
MI	●			●				●		●	
NY				●	●	●	●				●
MN		●				●	●		●		
FL	●			●				●	●		●
NV	●	●									
ME	●	●				●			●	●	●

Note: Table compiled from interviews and literature search and is provided to describe examples of statewide freight planning activities, not as an all-inclusive list.

- **Modal Office Coordination** – Many state DOTs are organized modally with one group responsible for highways, another for rail, often a third for ports and waterways. This hinders cross-modal communication and leads to fragmented freight planning.
- **Multi-Jurisdictional Coalition Programming and Implementation of Projects** – Multi-jurisdictional coalitions are important forums for identifying regional issues and problems, though they find it difficult to actually implement improvement projects, as they often have little controlling authority to address the issues and concerns raised by coalition members¹ or provide funding to projects that may address those concerns.
- **Interagency Coordination** – Intermodal freight improvement projects typically are complex projects involving several agencies. Interlocking requirements governing coordination, permit approvals, hearings, etc., can significantly expand the time required to plan and implement projects, driving up the cost of a project significantly.

2.2.3 Data and Analytical Tools Issues

The key issues surrounding the availability, development, and use of freight data and analytical tools, include:

- **Commodity Flow Data** – The lack of affordable, disaggregate, commodity flow data is a major concern for states. Publicly available data are often aggregated and reported for large areas while the purchase of these privately maintained data sets is often costly, and some states lack the funding and staffing resources to utilize them to their full potential.
- **Freight Flow Modeling** – A number of states have developed or are developing freight modeling techniques to forecast and simulate future commodity and vehicle flows; however, freight transportation modeling capabilities in many states are limited.
- **Evaluation Criteria** – Most freight improvement projects are evaluated for inclusion in TIPs and STIPs using the same set of criteria that are used for evaluating non-freight improvement projects, with the result that many freight projects never appear in a TIP or are ranked very low.

2.2.4 Resource Issues

Resources necessary for states to conduct freight planning can be categorized into three major areas: staff resources, private sector participation, and funding.

- **Staffing** – While most state DOT transportation planners hold advanced degrees in transportation or planning, few have formal training in freight planning and few transportation decision-makers fully appreciate the complexity of freight movements and their associated local impacts.

¹ *Challenges with Multi-State/Jurisdictional Transportation Issues*, FHWA, May 2001.

- **Private-Sector Participation** – The mismatch in planning horizons between the public and private sector (“generational” versus “quarterly”), and the fact that the private sector perceives the transportation planning process as overly cumbersome and bureaucratic, makes it difficult to keep the private sector engaged in the public sector planning process.
- **Freight Project Eligibility and Funding** – There are limited resources for freight-specific improvement projects. Highway-related freight improvement projects are usually eligible for funding under Federal and state highway programs, but multimodal and intermodal projects must often be shoehorned into air-pollution mitigation (e.g., Congestion Mitigation and Air Quality [CMAQ]) or safety programs (e.g., highway-rail grade-crossing separation programs).

3.0 Best Practices in Statewide Freight Planning

3.1 Overview of Freight Planning Components and Criteria to Determine Best Practices

Given the variety of state freight planning needs and resources, we do not believe that there is a benefit to trying to define an ideal comprehensive freight planning process. However, there are many examples of effective practices in statewide freight planning. States can build effective freight programs with different mixes of the best practices and procedures that are being applied around the country. While it is relatively easy to assess the number of freight-specific improvement projects programmed in a STIP, identify the states that have developed freight travel demand models, or to count the number of times a state's freight advisory committee meets annually, it is more difficult to assess the degree to which a state's freight planning program has been able to energize the private sector freight community, educate transportation decision-makers and the general public on the importance of freight, or influence statewide economic development efforts. In order to guide the identification of best practices in each of the freight planning components listed above, criteria to determine their effectiveness were developed and are shown in Table 3.1.

Table 3.1 Freight Planning Categories and Criteria to Determine Success

Planning Category	Criteria to Determine Success
Long-range planning process	<ul style="list-style-type: none"> • Freight studies are completed and results are incorporated into general transportation planning process • Freight improvement projects are identified • Freight issues are included in long-range plans • Study results in the identification of new policy, legislation, or funding programs
Organizational structure	<ul style="list-style-type: none"> • Freight issues are handled by a single division/section • Organizational structure resulted in more efficient consideration of freight issues across modes
Data and analytical tools	<ul style="list-style-type: none"> • Commodity flow/state freight profiles are developed • Freight models or other analytical tools are developed • Tools and profiles are utilized during general transportation planning process

Table 3.1 Freight Planning Categories and Criteria to Determine Success (continued)

Planning Category	Criteria to Determine Success
Private sector participation	<ul style="list-style-type: none"> • Private sector advisory group has been formed and meets regularly • Private sector stakeholders eligible to submit project ideas for consideration, either through advisory group or independently and have identified specific freight improvement projects
Multi-jurisdictional coordination	<ul style="list-style-type: none"> • State is an active participant in multi-jurisdictional coalitions and has been involved in completion of a regional freight plan or study • Coordination resulted in identification or programming of regional freight priorities or improvement projects

The following sections describe a range of best practices in each of the core elements of freight planning, from “quick response” techniques to more institutionalized activities. In each case, vignettes from actual practice are provided for illustration.

3.2 Best Practices in Incorporating Freight into the Long-Range Planning Process

Long-range planning is a recognized function of state DOTs. TEA-21 requires states to prepare long-range transportation plans and requires that expenditures of Federal transportation funds be programmed consistent with statewide long-range plans. Freight and goods movement efficiency is one of the planning factors in TEA-21 that must be taken into account in the preparation of long-range plans. But the Federal government has not provided clear guidelines as to how best to incorporate freight considerations into long-range transportation plans so the techniques that are used vary significantly from one state to another.

There are several models for long-range statewide freight transportation planning that seem to be emerging, including the direct integration of freight planning into the development of statewide transportation plans (for example, as an element of the statewide plan documents); the development of stand-alone statewide freight plans and studies; and the development of trade corridor studies.

Table 3.2 Summary of Long-Range Planning Case Studies

Case Study	Quantitative Data Required	Qualitative Data Required	Level of Effort	Cost	Outcomes
Texas Transportation Plan Update	<ul style="list-style-type: none"> • Base Year Commodity Flow Data (Reebie) • Commodity Flow Forecasts (Global Insight) • Data provided from modal carriers/ regional stakeholders 	<ul style="list-style-type: none"> • None 	High	High	<ul style="list-style-type: none"> • Identification of statewide freight deficiencies • Identification of statewide freight investment needs
New Jersey Long-Range Transportation Plan	<ul style="list-style-type: none"> • U.S. Commodity Flow Survey • Waterborne Commerce Statistics • State Rail Profiles 	<ul style="list-style-type: none"> • Public opinion surveys • Focus Groups 	Low	Low	<ul style="list-style-type: none"> • Analysis of freight trends and statewide transportation impacts • Establishment of public/private freight advisory group
California Global Gateways	<ul style="list-style-type: none"> • Existing regional, local, facility plans • Focus Groups/ regional stakeholders • FHWA Freight Analysis Framework data 	<ul style="list-style-type: none"> • Existing regional, local, facility plans • Focus Groups 	Medium	Low	<ul style="list-style-type: none"> • Identification of priority network of gateway facilities • Identification of priority improvement projects • Development of freight project implementation and funding program
Washington Freight Implementation Plan	<ul style="list-style-type: none"> • Classification counts • Weigh station data • MPO data • Waterborne Commerce Statistics • Carload Waybill Sample 	<ul style="list-style-type: none"> • Freight working group 	Medium	Low	<ul style="list-style-type: none"> • Development of DOT Freight Transportation program • DOT Freight Initiatives Implementation plan

Table 3.2 Summary of Long-Range Planning Case Studies (continued)

Case Study	Quantitative Data Required	Qualitative Data Required	Level of Effort	Cost	Outcomes
Maine Integrated Freight Plan	<ul style="list-style-type: none"> Base Year Commodity Flow Data (Reebie) 	<ul style="list-style-type: none"> Personal interviews Mail-in surveys Focus groups 	Medium	Medium	<ul style="list-style-type: none"> Development of statewide freight profile Identification of freight improvement projects Development of statewide freight advisory committee
Freight Impacts on Ohio's Roadways	<ul style="list-style-type: none"> Base Year Commodity Flow Data (Reebie) Forecast Commodity Flow Data (Global Insight) 	<ul style="list-style-type: none"> None 	High	High	<ul style="list-style-type: none"> Development of a profile of existing and future freight movements on Ohio highway corridors Assessment of the transportation system effects related to freight traffic growth
Regional Economic Effects of the I-5 Corridor/ Columbia River Crossing Transportation Chokepoints Study	<ul style="list-style-type: none"> Base Year Commodity Flow Data (Reebie) Transportation Satellite Accounts U.S. Census employment data 	<ul style="list-style-type: none"> Interviews with key industry stakeholders 	Medium	Medium	<ul style="list-style-type: none"> Identification of regional transportation chokepoints and development of their economic impacts

3.2.1 Direct Integration of Freight Planning in the Development of Statewide Transportation Plans

An approach to fully integrating freight transportation planning into statewide transportation plans would be to split transportation demand and deficiency evaluation into two primary categories: movement of people and movement of goods. Within the latter category, it would then be possible to specify the total demand for freight transportation, the modes that serve these needs, the current and projected conditions within each freight modal system, and a set of policies and investment strategies to ensure that each mode is able to provide for future freight transportation demand. There are several examples of states that have incorporated freight planning directly into statewide long-range planning processes, including Texas, described in the following case study.

Case Study – Texas Transportation Plan Update

Description

The Texas DOT is in the process of updating its long-range transportation plan. While the organization of the plan retains a modal focus that has been a feature of statewide transportation planning for some time, modes have been organized into those that primarily serve passenger transportation, those that primarily serve freight transportation, and those that serve both.

Motivation

The integration of freight into the Texas Statewide Transportation Plan was motivated by the growth in cross-border trade with Mexico and Texas' role as an international gateway. Because most of this traffic occurs on truck and rail, having a consistent picture of the role that each mode is likely to play in meeting future demand was critical. By looking at trade flows across the border in terms of the types of commodities being moved, the modes being used, and the characteristics of the modal networks, it was possible to identify logical corridors of trade flows and to see how well the configuration of existing networks meets these needs.

The second issue impelling Texas DOT to develop a more comprehensive approach to freight planning was modal connectivity concerns – the ability to move freight quickly, reliably, and cost-effectively from ship to truck, truck to rail, etc. This was a particular concern at the State's seaports, where freight must move back and forth between ships, trucks, and railcars. Understanding the volume of freight moving over the docks and the commodity/origin-destination (O-D) characteristics of the inland moves points out the particular modal connections that are required at the ports. Working with the ports themselves, the State was then able to identify some of the critical access choke points and modal connectivity problems that need to be addressed in the plan.

How Was the Plan Accomplished?

Several methods were used to develop a consistent long-range planning approach to freight modes in the Texas plan. All of the freight modal chapters begin with an inventory of the current system, an analysis of current traffic volumes, and a forecast of future demand. This is followed by an identification of deficiencies and policy issues that need to be addressed for the modes as well as cross modal issues that affect connections and interaction/competition with other modes. Finally, an estimate of investment needs is prepared for each mode.

The rail freight and intermodal chapter of the Transportation Plan Update benefited from the fact that an update of the State rail plan was being prepared at the same time. TxDOT staff wanted to ensure that the rail plan and the statewide plan update were completely consistent so the same data and analysis methods were used in each. As drafts of the rail plan were completed, the relevant elements of the plan were incorporated in summary form into the statewide plan. A significant amount of sharing of data and analysis was thus accomplished across these two efforts. Data on characteristics of the existing system, historical trends, and current commodity volumes and O-D patterns were gathered from the Carload Waybill Sample, Association of American Railroads documents, and the railroads themselves. The DOT was also able to take advantage of a number of special studies that were conducted by research arms of the state university system. Forecasts of rail traffic by commodity and O-D were taken from the same WEFA commodity flow forecasts that were used for other freight modes in the

statewide plan update and that are being used in the development of the Statewide Analysis Model (a statewide multimodal forecasting tool).

For the marine and ports chapter, much of the information on the current inventory of port facilities and port cargo volumes was obtained directly from the ports in the State and forecasts came from the same WEFA commodity flow data used to analyze future rail demand.

The identification of deficiencies was conducted primarily through stakeholder outreach. In both cases, contacts were made with modal facility operators (rail carriers and port authorities) as well as with MPOs that had active improvement programs and plans, typically involving rail relocation/grade separation programs or port access improvement programs. The Texas Transportation Commission also had a committee that had previously surveyed all public port authorities to obtain their list of priority needs and projects and this was used to obtain a first cut at port improvement needs. The deficiencies identified through this stakeholder outreach program were then compared to the analysis of current system capacities and forecast demand to determine if the needs seemed consistent with trends in the data. When inconsistencies were discovered, the stakeholders were contacted to get elaboration on the rationale for their needs identification. This iterative and collaborative process ensured buy-in and support from the key stakeholder groups.

By using a consistent forecast of future commodity movements it was possible to look across modes and to determine how modes worked together to comprise a system of freight movement. Within each of the freight modal chapters, some discussion was provided as to how the modes might shift their share of total goods movement to more efficiently provide for the needs of Texas' goods movement sector. While the State was not proposing an aggressive program of market intervention, this look across modes did raise some issues about the potential for re-aligning the State's freight transportation system.

The assessment of investment needs was one of the more difficult challenges that was faced in preparing the freight modal chapters since there was no well developed or widely accepted needs assessment methodology that had ever been used in the State to address investment needs for non-highway freight modes. In the case of freight rail, the DOT relied heavily on methodologies and data drawn from the recently released AASHTO Freight Rail Bottom Line Report. This report divided investment needs into several different categories for the nation as a whole and these aligned well with the deficiencies and investment needs identified in Texas. Using information on Texas' share of each category of infrastructure identified in the Freight Rail Bottom Line Report it was possible to apportion national needs to the Texas rail system. The Freight Rail Bottom Line Report also introduced the notion of investment scenarios, pointing out that to maintain financial health, the private rail carriers were consolidating their operations in the most profitable business sectors and that this has resulted in declining market share for rail relative to trucking. The Rail Bottom Line report looked at scenarios that would continue this trend, hold rail shares constant by market sector, and expand market share in rail-truck competitive markets. This same approach to needs assessment was used in Texas. One advantage of this approach is that it provides some indication of the implication for highway investment needs of trends in rail investment – whether these investments are made by the public or the private sector. This link across freight modes was a new planning approach for TxDOT.

In the case of ports, TxDOT also categorized investment needs based on classes of improvements (such as terminal expansion, raising bridge heights, and channel improvements). Data from project plans conducted by the ports and MPOs were developed and related to the size of facilities served and these were then used to estimate the total state investment needs across all categories of improvement projects.

Key Data Sources

With regard to freight transportation modes (freight rail and intermodal, marine, and trucking), the DOT's planning and programming office has done several things that tend to integrate the approach to freight planning. First, the State purchased commodity flow data from Reebie Associates that is being used as a primary data source for all of the freight modes. These data were originally purchased to support the development of the statewide analysis model (SAM), which was not completed in time to be used during the most recent long-range plan update. To support the long-range plan update, Texas DOT purchased a commodity flow forecast developed by Global Insights, consistent with the base year Reebie data. Global Insights uses international trade models, industry models, and regional econometric models to estimate growth factors for the commodity flows in the forecast. Thus, modal commodity flow forecasts were available for truck, rail, and marine modes in the statewide plan

Having a consistent set of commodity flow forecasts by mode ensured that the future demand for freight transportation was forecast based on a common set of economic assumptions and that mode shares were predicted in accordance with this consistent pattern of commodity and O-D trade patterns. This makes it possible to see the niche roles that different modes play in freight transportation and where modes compete for the same markets. As the transportation demand forecasts begin to show development of capacity constraints and bottlenecks, the commodity flow data helps identify how investments across modes will create the opportunity for a more efficient mix of modal services in order to address congestion and environmental concerns associated with freight transportation. In summary, the use of a common forecast of freight demand (the commodity flow forecast) and a set of freight focused issues helped create links in the freight portions of the statewide plan across modes.

In addition to the commodity flow data purchased from Reebie and the forecasts purchased from Global Insights, TxDOT also relied on public data sources such as the Carload Waybill Sample and the Army Corps of Engineers' Waterborne Commerce Statistics. The State had also participated in a major multi-state trade study, the Latin America Trade and Transportation Study (LATTs) that provided forecasts of international maritime trade and inventoried port investment needs. As noted above, the modal carriers and other stakeholders also provided data.

Critical Success Factors

There are several factors that contributed to the successful integration of freight into the Texas Statewide Transportation Plan, including:

- **Detailed Commodity Flow Data and Forecasts** – As discussed above, the Texas DOT purchased detailed commodity flow data from Reebie Associates and commodity flow forecasts from Global Insights, Inc for all modes of transportation. This consistent set of base year and forecast commodity flows allowed the DOT to more precisely identify current and future capacity constraints and bottlenecks that hinder the efficient movement of freight throughout the State and begin to develop intermodal solutions.

- **Private Sector Outreach** – Though the detailed commodity flow data and forecasts used by TxDOT in the development of the statewide transportation plan can provide a more complete understanding of goods movement patterns throughout the State, they do not always provide a complete description of the interaction between modes, particularly at ports and intermodal terminals. A key component to the success of the transportation plan was the ability of TxDOT to work with the State’s seaports to better understand the shipment characteristics of port traffic and identify the associated access choke points and modal connectivity problems.
- **An Appreciation of the Significance That Trade Growth Is Having on Multimodal Planning Needs** – The expansion of trade with Mexico in the post-NAFTA era and Texas’ role as an international gateway has clearly raised the visibility of freight transportation issues. Major highway corridors that have experienced worsening of congestion for autos are also growing truck corridors serving NAFTA trade. Parallel rail corridors exist in several of these rail corridors so modal diversion opportunities are of interest to the DOT.

TxDOT has traditionally had a highway focus and its jurisdiction in non-highway modes is somewhat limited. How it will evolve its multimodal freight planning is still an open question. But freight issues are clearly a catalyst for a new approach to planning in Texas that is likely to see increasing attention in the future.

This case study provides an example of a state using detailed commodity flow data and forecasts to assess the ways in which freight vehicles are using the State’s transportation system, define trade corridors and identify key freight chokepoints, and develop long-range strategies to address these issues. Detailed commodity flow data are not necessarily a requirement to fully incorporate freight planning into a statewide long-range transportation plan, however. In fact, other states have fully addressed freight issues in their long-range plans in the absence of comprehensive commodity flow data. One such example is the New Jersey DOT, described in the following case study.

Case Study – New Jersey Long-Range Transportation Plan Update

Description

The New Jersey DOT (NJDOT) recently updated its Long-Range Transportation Plan, *Transportation Choices 2025*, to identify and address the needs and priorities of the State’s transportation system over the next 25 years.

Motivation

The freight transportation industry plays a significant role in the State’s economy and goods movements significantly affect the State’s transportation system, as well – the State is home to significant international freight gateways including the Port Authority of New York and New Jersey and Newark International Airport, and also acts as a gateway between New England and Mid-Atlantic markets. The DOT had recently completed a research study, called *The Value of Freight to New Jersey*, to increase the public awareness of how freight transportation affects the State’s economic vitality and improves the lives of its residents. The update of the statewide transportation plan provided an opportunity to more formally integrate freight interests into the long-range transportation planning process.

How Was the Plan Prepared?

The NJDOT first conducted an inventory and condition assessment of its transportation system which not only included information describing the State's transportation infrastructure and facilities, but also provided information describing the ways in which the system was being used. Unlike the Texas DOT, though, NJDOT did not have access to a common set of commodity flow data and forecasts such as those available from Reebie Associates and Global Insights. As discussed in the Texas DOT case study, commodity flow data and forecasts are important in understanding the roles that different modes play in freight transportation, identifying capacity constraints and bottlenecks, and developing investment strategies across modes to address statewide freight transportation issues. Despite the absence of such data, NJDOT was able to build a comprehensive freight profile in two important ways. First, the DOT used available data from public and industry association sources such as the Bureau of Transportation Statistics (Commodity Flow Survey), the U.S. Army Corps of Engineers (Waterborne Commerce Statistics), and the Association of American Railroads (State Rail Profiles). These data were used to paint a picture of freight movements affecting the State. To supplement this information and to gain more insight into the trends and issues affecting the State's transportation system, NJDOT conducted a series of outreach events designed to solicit public comments. A variety of outreach activities were used, including:

- **Public information centers**, which were established in several locations throughout the State;
- **Project web site**, which was used to provide information to the general public and solicit feedback;
- **Focus groups** with citizens from various demographic groups;
- **Public opinion survey**, which solicited the opinions of 800 state residents; and
- **Issue groups**, which provided forums for experts in several areas (freight, travel and tourism, mobility and the aging, travel demand management, and technology) to share ideas and discuss transportation issues.

The freight issue group was a key resource in the completion of the statewide transportation plan. In addition to representatives from the NJDOT, area MPOs, and port authorities, the freight issue group consisted of representatives from shippers and carriers, including the Class I railroads, port and terminal operators, and other freight industry stakeholders. This focus group was important for several reasons. First, participants assisted NJDOT in the identification and analysis of trends affecting goods movement in the State and assessing their impacts on the State's freight transportation system. Secondly, participants helped guide future strategies and visions to improve the movement of freight in the State, a key component of the State's long-range planning efforts. Finally, the freight focus group provided the opening for the NJDOT to begin a dialogue with the private sector freight community and resulted in the establishment of an International/Intermodal Corridor Coordination within the DOT to support the development of private/public partnerships on freight initiatives in northern and central New Jersey.

Key Data Sources

As discussed above, the NJDOT did not purchase commodity flow data or forecasts to aid in the completion of *Transportation Choices 2025*. Rather, they utilized a variety of different public

data sources and supplemented that data with information gleaned from their private sector freight community outreach efforts. Data sources used by the NJDOT in the development of the statewide transportation plan include:

- **Bureau of Transportation Statistics Commodity Flow Survey**, to describe commodity flow patterns at the state level;
- **U.S. Army Corps of Engineers Waterborne Commerce Statistics**, to describe the amount of freight handled by the State's seaports;
- **Association of American Railroads State Rail Profiles**, to describe the State's rail network and the commodities they handle; and
- **NJDOT resources**, to describe major truck routes and travel restrictions, air cargo data, and other information.

Critical Success Factors

There were several factors that contributed to the successful integration of freight interests into *Transportation Choices 2025*, including:

- **Private Sector Outreach** – As discussed above, the NJDOT did not purchase detailed commodity flow data to guide the development of the statewide transportation plan. Data available from public sources were supplemented by information obtained during the extensive public outreach efforts associated with the plan development, particularly through the involvement of the private sector freight community in the freight issue group.
- **Institutionalizing Freight Planning** – NJDOT has not only addressed freight interests in its long-range transportation plan, it has also taken steps to ensure that freight is actively considered by the DOT in its day-to-day operations. Following the issuance of *Transportation Choices 2025*, the Bureau of Freight Planning and Intermodal Coordination was established within the NJDOT. This Bureau is charged with developing New Jersey's first Comprehensive Statewide Freight Plan, coordinating various freight activities undertaken by the Department, and with supporting the development of private/public freight partnerships in New Jersey. The Bureau will help the NJDOT maintain its focus on freight and freight issues and will facilitate the planning and programming of freight-specific improvement projects in the future.

Other statewide planning efforts focus specifically on the impact of international freight gateways on a state's transportation system and economic vitality. An example of such a planning effort is described below.

Case Study – California Global Gateways

Description

The most notable long-range freight planning of the California DOT (Caltrans) was the development of the Global Gateways Development Program report, completed in January 2002. In September 2000, the California legislature passed Senate Concurrent Resolution (SCR) 96 which requested that Caltrans "in cooperation with the Business Transportation and Housing Agency, the Trade and Commerce Agency, the California Transportation Commission, lead transportation

agencies, ports and airports, and other appropriate parties, prepare a proposal for a ‘Global Gateways Development Program.’ The purpose and objective of the program shall be to improve major freight gateways in California to enhance overall mobility, including increased access at and through international ports of entry, international airports, seaports, other major intermodal transfer facilities and goods movement distribution centers, and trade corridors in California. Preparation of the Global Gateways Development Program shall, among other actions, identify high-priority airport and seaport access and intrastate transportation projects for purposes of potential state, Federal, and other funding. The identified projects should serve to facilitate the movement of intrastate, interstate, and international trade beneficial to the State’s economy...”¹

Motivation

SCR 96 was introduced by Senator Betty Karnette, a legislator from the district surrounding the San Pedro Bay ports (Long Beach and Los Angeles) in Southeast Los Angeles, who has recognized the significance of infrastructure investment in the gateway access transportation facilities and is trying to foster a new program to create statewide investment resources to improve these facilities. The political environment that fostered the creation of the Global Gateways Development Program included some of the following key considerations:

- Governor Davis had recently announced the creation of a major new infrastructure initiative with the creation of the Transportation Congestion Relief Program (TCRP) which is being used to fund a number of freight-oriented projects. The Legislature hoped to capitalize on this momentum and provide additional focus for freight investment.
- Preparations for reauthorization of TEA-21 had begun and there was considerable discussion at the Federal level about the types of programs for freight that might emerge. California hoped to unify its stakeholders in the freight area and position itself to take advantage of the national momentum that freight programming has been gaining. By identifying itself as an international gateway region, the State hoped to drive a greater partnership with Washington, D.C.

The passage of SCR 96 mobilized the Caltrans Office of Goods Movement within the Division of Transportation Planning and created the imperative for the development of the closest thing to a statewide freight plan that Caltrans had produced since the release of the Statewide Goods Movement Strategy in 1998 as an element of the California Transportation Plan Implementation Update.

SCR 96 required Caltrans to undertake the following tasks:

- Report on the significance of international trade and gateway freight transportation on the State and national economy;
- Identify a priority network of gateway facilities;
- Obtain input from stakeholders on issues and project improvement proposals;

¹ California Senate Concurrent Resolution (SCR) 94, 2000.

- Identify priority improvement projects; and
- Develop the structure of a program for continuing funding and implementation of gateway infrastructure improvement projects.

How Was the Plan Prepared?

Caltrans relied heavily on key stakeholder groups throughout the State who were already actively involved in developing their own freight improvement programs. There were already several active planning communities in the State who were working to develop regional, local, or facility plans. The Southern California stakeholders were far out in front of the rest of the State for a variety of reasons. The Southern California Association of Governments (SCAG), the Los Angeles MPO, has had a freight element in its Regional Transportation Plan since the mid-1990s and has undertaken numerous studies of goods movement issues that have collected regional goods movement data, developed a sense of regional priorities, and identified projects. The San Pedro Bay Ports have been active participants in regional goods movement planning and the success of the Alameda Corridor, the nation's largest freight public works project, brought together the ports, the Class I rail carriers, the Los Angeles County Metropolitan Transportation Authority, and local cities together with SCAG to conduct freight planning. These efforts have spawned numerous other project planning efforts in the region and various ad hoc stakeholder groups were already meeting when the Global Gateways Program proposal was being formulated. Stakeholders in the San Diego region had also conducted several studies of cross-border activity and were able to provide perspectives on the significance of the border crossing issues. In the Central Valley, eight county regional transportation planning agencies (RTPA) had come together to conduct a regional freight study and they had collected much data from readily available sources and surveyed shippers and carriers in the region to gain insight into important freight issues. In the San Francisco Bay Area, the Port of Oakland had undertaken a number of studies and regional business and economic development organizations were beginning to press freight issues with the regional MPO. All of these programs provided pockets of stakeholder activity that Caltrans was able to tap.

The process that Caltrans used can be characterized as a very bottoms-up process. A Global Gateways Ad-Hoc Advisory Group was created that included stakeholders from many of the gateway regions and included economic development organizations, consultants active in the Alameda Corridor program, representatives from the ports, MPO representatives, and academics. The advisory group not only provided advice on the project and policy content of the report but also provided their own data that could be pieced together to tell a story at the state level. As the program developed, a formal external technical advisory committee was formed that included members from similar stakeholder groups as the ad-hoc advisors but broadened the sources of information.

Staff at Caltrans obtained information and data from the stakeholders and other sources within the department, other state agencies, and the Federal government and began to tell the story of international trade and gateway freight movement in California in sufficient detail to suggest the importance of this freight movement to the state and national economy. Telling this part of the story has been an important part of what makes the report a valuable policy resource and a way to expand stakeholder involvement. Advisors to the project recommended that the priority gateway facilities be determined based on volume of activity. Caltrans was able to use a number of readily available sources from the Federal government (e.g., the Carload Waybill Sample from the Surface Transportation Board, the Waterborne Commerce Statistics from the

Army Corps of Engineers, air cargo statistics from the Federal Aviation Administration), from Caltrans modal divisions, Caltrans traffic and vehicle classification count data, in addition to data from the stakeholders to help define the priority network. In addition to network facilities, Caltrans introduced the notion of priority trade regions as a way to involve a broader cross-section of the State in the program and not just focus on the coastal and border regions.

Once the priority network was defined, Caltrans had to identify the major problems and potential solutions. This was done largely with stakeholder input. In addition to the advisory groups, Caltrans conducted a survey of MPOs, shippers, and carriers. The survey asked what improvement actions should be undertaken, it asked about prioritization of projects, it asked about new and innovative strategies, it asked about critical goods movement trends that would shape the future needs, and it asked about funding options.

Key Data Sources

As noted above, Caltrans relied on readily available data. They did not purchase any commodity flow data nor did they contract for consultant studies to support the effort. Caltrans held a series of workshops around the State and invited the stakeholders to participate. In follow-up to the workshops, Caltrans was in touch with each of the stakeholders to obtain data from them including data on current and projected modal traffic volumes, estimates of the impacts of gateway trade on the State's economy, assessments of transportation deficiencies by mode, and ideas for improvement concepts that would address critical needs. The State had completed development of a statewide goods movement strategy in 1998 and a trade and goods movement study in the mid-1990s that compiled data on statewide freight trends and needs so there was at least some statewide data available to support the Global Gateways report. In addition, Caltrans relied heavily on state-level commodity flow data that was released by the Federal Highway Administration's (FHWA) Office of Freight Management and Operations. FHWA has developed a national, multimodal commodity flow database and forecast called the Freight Analysis Framework. The raw data are available to describe state to state commodity flows, and the FHWA has produced a number of metropolitan area maps of freight flows by mode on the highway and rail networks. Caltrans made use of these data to document many of the points that were raised by the stakeholders. In addition, several of the stakeholders (Southern California Association of Governments, the Port of Long Beach, the San Joaquin Valley regional transportation planning agencies) had conducted major data collection programs and had built freight travel demand models that provided local data that were used to support the analysis of the Global Gateways Program.

Critical Success Factors

There are several critical factors that have contributed to the success of the Global Gateways Development Program plan. These include:

- **High-Level Champion** – Having a legislatively mandated report that drove the planning process helped focus the effort and it convinced stakeholders that someone was paying attention to the outcome. This generated a lot of enthusiasm among the stakeholders. Senator Karnette has been a key driver of this type of interest.
- **The Promise of Something at the End of the Process** – Freight stakeholders in California have long been frustrated that the State freight planning effort does not lead too much funding or project activity. SCR 96 specifically required Caltrans to develop a program and

funding strategies. The focus on how to get projects funded helped generate interest from the stakeholders.

- **A History of Activity to Build on** – The California MPOs and Caltrans have continued to think about and talk about freight even when they were not building much. This meant that when the time came to do the Global Gateways Development Report, there was information to tap and the report could be prepared without a huge expenditure of money on new data.
- **Timing** – The timing of Global Gateways relative to the Federal reauthorization schedule was very valuable in getting attention to the plan. Prior to reauthorization, the FHWA Office of Freight Management and Operations engaged in a series of listening sessions including one in Long Beach that were intended to generate proposals for new freight programs. This had been preceded by a TRB program on intermodal freight issues in Long Beach. Richard Nordahl, Director of the Caltrans Office of Goods Movement says, “FHWA came to the State and stirred things up and Global Gateways was there to build on that momentum.”

3.2.2 Development of Statewide Freight Plans

Another way by which states are incorporating freight into their long-range planning programs is through the development of statewide freight plans. Quite a few states have elected to develop statewide freight plans that are used to guide long-range freight planning. Sometimes these statewide freight plans are developed independent of the statewide plan development process. In other cases, they can be an outgrowth of a statewide plan that recommends completion of a statewide freight plan as a way of compiling data and suggesting directions for freight planning in future statewide long-range plans or may be developed to directly support the statewide long-range planning effort.

Those states that develop statewide freight plans typically do so because they believe that the statewide long-range plan considers too wide a range of transportation planning issues to allow for sufficient focus on freight planning issues. A separate freight plan provides this focus and can give a clearer sense of direction for programming freight transportation projects as well as identifying critical state-level policy issues that need to be addressed to improve freight transportation efficiency.

There are two basic approaches that have emerged to developing a statewide freight plan. The first is a “bottoms up” approach. In this case, the State DOT goes out to the State’s MPOs, freight stakeholders, and other modal offices or departments within the DOT and elsewhere in the State government to identify critical freight issues and concerns. Data are then assembled from these stakeholders to help support the identified needs. Finally, the State planning office integrates all of the pieces and identifies the interconnections with overarching state transportation issues. Washington State DOT’s Freight Implementation Strategy provides a good example of this approach.

Case Study – Washington Freight Implementation Plan

Description

In November 2002, the Washington State DOT’s (WSDOT) Office of Freight Policy and Strategy issued the first State Freight Implementation Plan. The purpose of the Plan is to provide an

overview of all of the elements of the WSDOT program that address freight issues and to ensure that these elements are coordinated to achieve the goals and implement the policies for freight transportation that have been established by the department, the Washington Transportation Commission, and the State legislature.

A major emphasis of transportation planning in Washington is project delivery. This responds to voter concerns about the value of transportation expenditures and it has resulted in a very action-oriented program. The Freight Implementation plan reflects this emphasis with extensive discussion of the process by which projects are programmed, funded, and constructed.

The Freight Implementation Plan identifies all of the elements of the department's plans and programs that address freight needs, identifies the responsible organizations within the DOT, describes the specific programs and how they contribute to freight policy objectives, and identifies specific projects and funding sources that are the outcomes of these programs.

The next update of the plan is expected to focus on the identification of gaps in the program that need to be addressed to eliminate barriers to efficient freight movement and the development of new data and analysis tools to support freight planning in the future.

Motivation

Freight planning in Washington has experienced a surge of activity over the last decade, coinciding with the growing interest in freight issues nationally that began to take shape with the passage of ISTEA. The Implementation Plan lists several facts about trade and goods movement in Washington that reflect the understanding that citizens, business leaders, and transportation planners have about the importance of goods movement to the Washington economy:

- One in four jobs in Washington are dependent on foreign trade;
- Forty-three percent of the nation's wheat travels on Washington's rivers;
- Since NAFTA (1993), truck traffic at the Canadian border of Washington has increased by almost 100 percent;
- Freight and goods tonnage moved by road in the State has increased by 116 percent since 1980; and
- Puget Sound deep water ports have the second highest level of container traffic in the United States.

The sources of this information (the Washington Association of Public Ports, the WSDOT Rail Office, the International Mobility Trade Corridor, and the State transportation plan) indicate the variety of organizations that have been actively involved in freight planning in the State. They also provide an indication of the statewide issues that have helped focus attention on freight planning:

- The growth in Asian trade in the 1970s and 1980s was one of the most notable contributors to economic growth in the State during this period and port communities early on recognized the importance of freight transportation and access issues to preserving this economic engine.

- Local issues involving the State's river transportation system have received considerable attention. Proposals to breach the dams in the Columbia/Snake River System and to deepen the channel in the Lower Columbia River are; widely reported in the public press.
- The growth in United States-Canada trade and the implications for border regions has received much attention since the adoption of bi-lateral trade agreements in the 1980s and the passage of NAFTA. The availability of trade corridor funding through TEA-21 has been very important in supporting a variety of initiatives in Washington and has helped with the formation of freight transportation-oriented stakeholder coalitions.

As in a number of states with active freight planning programs, the State legislature took a leading role in helping to focus the WSDOT freight planning effort. In 1998, the legislature directed WSDOT to focus on five primary goals, one of which dealt with freight mobility: "...ensure that freight transportation is reliable and transportation investments support Washington's strategic trade advantage." In implementation of this goal, WSDOT addressed freight mobility issues in the Washington Transportation Plan (the statewide long-range transportation plan) and the 2001 Freight and Goods Transportation System Update. In 2001, the DOT was reorganized and the Office of Freight Policy and Strategy was created, reporting directly to the Chief of Staff of the Secretary's Office. In the Washington Transportation Commission's FY02 workplan, the Office of Freight Policy and Strategy was directed to prepare an implementation plan "for focusing and coordinating WSDOT freight initiatives in the 2003-2013 Washington Transportation Plan (WTP) Implementation Plan and 03-05 budget proposals."

How Was the Plan Prepared?

The Washington Freight Implementation Plan is an example of a bottoms up planning effort. The internal focus and the focus on implementation is a good way to begin statewide freight planning when there has been some activity but a lack of coordination. The Office of Freight Policy and Strategy began its efforts with a detailed inventory of all of the plans of the various offices and divisions of the DOT to identify freight programs and projects. This inventory revealed that there was quite a lot activity already underway, although not always with a clear understanding of how these activities in the aggregate supported the State's freight transportation goals. This recognition led to one of the major themes of the implementation plan – freight planning and programming in Washington involves a lot of different organizations who all have different customers and stakeholders. The Office of Freight Policy and Strategy recognized the advantage of maintaining this decentralization in the implementation of the program. Modally and functionally focused programs within the department had developed a high level of expertise, in some cases that cut across the freight-passenger dichotomy (as in the case of the Public Transportation and Rail Office or the Urban Corridors Office). As long as the Office of Freight Policy and Strategy was there to ensure that freight planning goals were being addressed appropriately in these offices and that the various programs worked together to address statewide needs, there was no reason to centralize the implementation functions. Because the Office of Freight Policy and Strategy reports directly to the Secretary, they were better able to play this coordinating role.

The Office of Freight Policy and Strategy identified the following elements of the WSDOT programs/plans that address freight needs:

- Planning and Capital Program Management Division
 - Highway System Plan
 - Mobility/Congestion Relief Program
 - Economic Initiatives Program
 - Transportation Data Office
- Engineering and Regional Operations Division
 - Advanced Technology Branch (ITS)
 - Motor Carrier Services (including CVISN)
- Public Transportation and Rail Office
 - Freight Rail Program
- Urban Corridors Office
 - Freight Action Strategy (FAST) Corridor
- Aviation Division
 - Air Cargo and Air Freight Program
- Transportation Economic Partnership Division
 - Private Sector Economic Development Program
- Washington State Ferries
 - Commercial Vehicle Management
- Transportation Research Office
 - Strategic Freight Transportation Analysis Project (Washington State University)

The Office of Freight Policy and Strategy reviewed all of these plans and programs to develop a description of the DOT freight transportation program and began to analyze the extent to which goals and policies of the department were or were not being addressed by these programs.

The Office of Freight Policy and Strategy also convened an Executive Working Group consisting of program managers in each of the key offices to discuss the freight plan and to ensure that coordination of activities was actually taking place. This has resulted in an ongoing Freight Working Group that meets every other month to help identify gaps in the programs and how they can work better together to achieve departmental objectives.

As noted above, the next update of the plan will begin to focus on gaps in the program and needs that are not being met. In addition, data and information needs are being identified and the current data and analytical tools programs will be reviewed.

Key Data Sources

The Freight Implementation Plan was focused on programs and projects and did not make any attempt to evaluate or prioritize needs. However, the State does have a priority truck network and modal plans that do rely on a variety of data sources to help forecast needs and prioritize projects. The Transportation Data Office maintains the DOT's vehicle classification count data. Using data on truck weights and payloads from weight stations and the Eastern Washington Intermodal Transportation Study (EWITS), the Traffic Data Office has estimated tonnage of freight (truck counts multiplied by vehicle weights) moved on each of the state highways. This has been used to identify those roads that carry the most freight. The Public Transportation and Rail Office uses data from the rail carriers and the Surface Transportation Board's (STB) Carload Waybill Sample to estimate rail cargo volumes transported in the State. The Washington Association of Public Ports maintains a variety of data on port activity obtained directly from the ports and the U.S. Army Corps of Engineers. In addition, they sponsor a regular program of cargo forecasts for the Washington ports that is useful in evaluating international trade impacts on the Washington transportation system.

The EWITS project conducted by Washington State University involved a number of roadside intercept surveys throughout the State that have helped to estimate statewide commodity flows, truck weights, and forecast freight volumes. The study is currently being updated and expanded in the Strategic Freight Transportation Analysis (SFTA) project.

Critical Success Factors

There are several key factors that John Doyle, Director of the Office of Freight Policy and Strategy believes have contributed to the success of the plan:

- **A Decentralized, Consensus-Based Approach** – In Washington, Doyle believes it would be difficult to conduct a top down planning process. The Implementation Plan acknowledges the expertise and customer focus of the different offices and divisions within the department and tries to help them work together to achieve more than they could accomplish on their own.
- **High-Level Commitment to the Plan** – The fact that the freight focus in the WTP was directed by the State legislature and that the plan itself was mandated by the Transportation Commission has given it a level of priority and visibility that has been important. The fact that the Office of Freight Policy and Strategy reports directly to the Secretary also helps promote cooperation of the operating divisions whose efforts needed to be coordinated to produce the plan.
- **A Focus on Project Delivery and Implementation** – The plan deals with specific projects and programs and thus maintains an implementation focus that has captured the attention of stakeholders and ensured their support and input in the process.

The second kind of approach to developing a statewide freight plan is a “top down” approach, whereby the State DOT collects data, identifies key issues and constraints, and develops recommendations to guide future freight planning and programming activities at the state level.

This kind of approach often works well in smaller states with few MPOs or DOT districts, such as Maine, where stakeholders and planning efforts are more centralized.

Case Study – Maine Integrated Freight Plan

Description

The Maine DOT Office of Freight Transportation (OFT), formed in 1996, is responsible for the formulation of freight policy, programs, and projects on Maine's intermodal freight transportation system. The OFT completed the original Integrated Freight Plan (IFP) in 1998; an update to the original IFP was completed in 2001. The goals of the IFP and update were to:

- Develop a detailed freight profile for Maine;
- Build relationships with and identify the concerns of public and private freight stakeholders in the State; and
- Recommend specific freight improvement projects and changes to Maine's freight planning program.

The IFP was developed in coordination with the State's 20-year, six-year, and two-year transportation plans. The DOT's 20-year plan establishes goals, objectives, and strategies for the department; the six-year plan is utilized in the State's capital improvement planning and programming efforts and provides the linkage between the 20-year plan, which is policy-based, and the two-year plan, which is project-based. As in many states, Maine's 20-year, six-year, and two-year transportation plans had a heavy emphasis on traditional highway transportation, with freight issues and concerns receiving little attention. Completion of the IFP allowed the Maine DOT to focus on critical freight policy and programming issues that affected the movement of freight statewide and provided strategic guidance to the Office of Freight Transportation in building their freight planning program.

Motivation

The development of the Maine IFP was driven by several factors, both inside and outside the DOT itself. Like many of its counterparts across the country, Maine recognized the increasingly important role played by freight transportation in the management and growth of its overall transportation infrastructure, and in the promotion of its economic vitality. The Maine DOT also recognized several freight trends that presented both opportunities and challenges to the State's transportation system. These trends include:

- The growth in trade with Canada as a result of the U.S. – Canada Free Trade Agreement in 1999;
- High growth rates in the State's service and value-added technology-based industries, increasing the demand for "just-in-time" delivery of products; and
- Continued strength in the State's traditional resource-based industries, including forestry and manufacturing.

Freight planning within the State was also driven by ISTEA and Maine's Sensible Transportation Policy Act (STPA), also enacted in 1991, which encouraged the development of intermodal

solutions to transportation problems and directed the DOT to promote the coordinated and efficient use of all available modes of transportation. The completion of the original IFP was motivated internally, as well. The DOT was reorganized from five separate modal offices to the Office of Passenger Transportation and the Office of Freight Transportation (OFT) in 1996. The Director of the OFT, while completing the mission statement and objectives for the newly formed OFT, realized that there needed to be a formal document to describe how the office's functions would be integrated. The original IFP not only gave the office a baseline of information describing freight flows in the State, their impact on economic development, and described how the various modes involved in freight transportation fit together; it also became the Office's business plan, guiding the direction of the Office's efforts over the next several years.

How Was the Plan Prepared?

Both the original and updated IFPs included a significant outreach to the State's freight transportation industry, business leaders, local governments, and other freight stakeholders. In fact, these outreach efforts were the primary data collection tool used in the development of the original IFP. Data were collected via four types of surveys conducted directly by the OFT:

- Personal interviews were conducted by OFT staff with 80 key stakeholders in both the public and private sectors;
- Mail-in surveys were sent to the State's 340 largest manufacturers (140 responses were received, representing a high response rate of 41 percent);
- Mail-in surveys were also sent to the members of the State's seven Regional Transportation Advisory Committees (RTAC) (38 responses were received); and
- Mail-in surveys were sent to government officials of municipalities with major transportation routes or facilities.

The findings of these surveys were compiled qualitatively, and quantitatively when possible, though the focus of the effort was not to obtain a statistically significant sample. Commodity flow data for Maine were obtained from a variety of sources, including the Bureau of Transportation Statistics, the American Association of Port Authorities, the Association of American Railroads, the Vehicle Inventory and Use Survey, and other sources. These data were used to supplement the information collected via the survey and interview process in order to develop a more comprehensive freight profile of the State. The IFP update, completed in 2001, used commodity flow data from Reebie Associates in order to update the original freight profile.

Development of both the original and updated IFP were guided by the Maine Freight Transportation Advisory Committee (FTAC), which consists of major shippers and carriers within the State. Working with FTAC, the OFT developed a set of short-, medium-, and long-term recommendations for specific freight improvement projects and enhancements to Maine's freight planning program.

Key Data Sources

As discussed above, the Maine OFT utilized a variety of data during the development of the original and updated IFPs. Key data sources for the original IFP included:

- **Bureau of Transportation Statistics' Commodity Flow Survey**, which was used to identify key commodities;
- **Census Bureau's Vehicle Inventory and Use Survey**, which was used to describe the State's commercial vehicle fleet and range of operation;
- **American Association of Port Authorities data**, which were used to describe flows into and out of the State's seaports;
- **Association of American Railroads data**, which were used to describe rail flows within the State; and
- **Bureau of Transportation Statistics' Transborder Surface Freight Trade data**, which were used to describe trade patterns between Maine and Canada.

In addition to these sources, a large portion of the data used in the development of the original IFP resulted from the outreach efforts described earlier. The interviews and surveys conducted as part of the development of the original IFP not only provided data describing the issues and constraints affecting the State's freight transportation system, they also provided OFT staff the opportunity to build relationships and develop dialogues with key private sector freight stakeholders.

The update to the original IFP was designed to create a more advanced, state-of-the-art freight program for the State. Data collection was also a key component of this effort because, through this activity, MDOT could begin to measure and evaluate which characteristics of the freight system that had changed since completion of the initial IFP. This was the first opportunity for OFT to review its first freight transportation planning effort and determine what worked well, what needed to be changed, and where the program ought to be headed. A primary data collection activity focused around collecting information from shippers, receivers, and carriers. A second activity focused on the acquisition of more geographically disaggregated commodity flow data than had been used in the past.

The specific data collection activities were as follows:

- Identify and gather existing data and reports describing the State's freight transportation system;
- Develop and distribute mail-out surveys and personal interview forms to collect data and input from Maine shippers/receivers, carriers, and municipalities; and
- Purchase county-level commodity flow data from Reebie Associates.

The purchase of county-level commodity flow data for both a base and future year from Reebie Associates allowed the OFT to develop a more detailed freight profile for the State and assess the effects that freight growth would have on the State's transportation infrastructure. However, the development of this profile still depended to a large degree on input from the State's shippers and carriers. The data collection effort for the IFP update also included the completion of 340 mail-out surveys to Maine-based businesses and 42 municipalities. In addition, personal interviews were conducted with 80 businesses and other freight stakeholders.

Critical Success Factors

The Maine OFT believes that there are several factors that contributed to the success of both the original and updated IFPs, including:

- **Relationships with the Private Sector** – The private sector can often provide the background, expertise, and guidance necessary to conduct successful freight planning programs. Their buy-in to the program is important. Maine has worked to develop personal relationships with most if not all of the important private sector freight stakeholders in the State, a major factor in the success of their program.
- **Emphasis on the Link between Freight Transportation and Economic Development** – Freight and economic development go hand in hand, though many state legislators and the general public are not aware of this link. Legislators and the general public are more apt to support freight planning efforts if they understand the benefits of such work. Outreach to the private sector freight industry, business leaders, state and local decision-makers, and the general public are key to the success of the State's freight planning program.

This case study provides an example of how a stand-alone statewide freight plan can be developed using publicly available data combined with extensive outreach efforts. It also shows how these outreach efforts can build support for a statewide freight planning program.

3.2.3 Freight Studies

In addition to freight plans that are linked to long-range transportation plans, several states have conducted statewide freight studies that are not directly linked to the statewide long-range planning process. In some cases, these studies were conducted to get a better handle on freight issues in the State prior to developing a more comprehensive freight program. These studies are often precursors to a more explicit consideration of freight transportation issues in the State's long-range plan. In other cases, freight studies were developed in response to a particular high-level policy initiative (initiated by the DOT director, the governor, or the State legislature). The Impact of Trucks on Ohio's Roadways Study is one example of this type of study.

Case Study – Impact of Trucks on Ohio's Roadways

Description

The Ohio DOT (ODOT) developed the Impacts of Trucks on Ohio's Roadways study in 2001 in order to:

- Provide Ohio DOT with a clear picture of existing and future freight movements on Ohio's macro-highway corridors which constitute the most strategic elements of the State's roadway system;
- Assess the impact that future changes in the freight system and freight movement may have on Ohio's roadways; and
- Make recommendations to deal with these demands, while maintaining Ohio's strong economic growth.

The study concentrated in four key areas:

1. Maintaining Ohio's Macro-Corridors;
2. Linking Ohio to the Global Economy;
3. Improving Ohio's Freight Corridors; and
4. Supporting Local Economic Development.

The study has been useful in several ways:

- **Evaluation of Freight Improvement Projects** – The results of the Freight Impacts Study have been developed into performance measures which help ODOT prioritize highway improvement projects. These performance measures, which essentially award points for existing or projected truck traffic, are particularly helpful when deciding which of several corridors will receive improvements, as ODOT is better able to identify the routes used by key state industries and identify the routes that may assist economic development efforts.
- **Justification of Freight Improvement Projects** – The ODOT Director has used the Freight Impacts Study in testimony to the State legislature on several occasions. Legislators have really taken to the study because it can be used to support economic development efforts; business leaders like the study, as well, because it directly reflects their needs. The value of commodities handled by certain roadways is of keen interest to lawmakers and business leaders.
- **Dialogue with the Private Sector** – The study was effective as an outreach to the private sector freight community, representatives of which were involved in the project's steering committee. This group lent validity to the study results and was an important forum to discuss the differing needs of the public and private sectors.

Motivation

The impetus behind the completion of the Freight Impacts Study was the update to *Access Ohio*, the statewide transportation plan, and the need to consider freight in that plan to be consistent with the requirements of TEA-21. In addition to the *Access Ohio* update, ODOT was in the midst of developing a comprehensive, statewide, travel demand forecasting model, which will include sophisticated freight-planning capabilities. However, this model will not be fully functional until 2005. The Freight Impacts on Ohio's Roadway research project was designed to provide ODOT with the background and information to help them develop the freight component of the statewide model. The Freight Impacts study addressed Ohio's needs for interim information and tools to assess freight trends and impacts on the State's roadway system.

The project was championed by the current ODOT director. When the director first arrived at ODOT, he indicated his desire to improve the State's research program, which had been producing a lot of asphalt and concrete deterioration studies, but had not provided much in the way of planning studies. The director was particularly concerned about truck traffic and wanted to move beyond using truck counts and straight line projections of truck growth. He wanted to get a better handle on what was driving truck traffic patterns within the State, gather commodity information to be able to project growth in truck traffic based on projected growth in specific commodities, and be able to use that information to make decisions on future roadway improvement projects.

Another factor that supported the completion of the Freight Impacts study was the fact that FHWA had begun to become more heavily involved in freight issues, particularly through the Office of Freight Management's Freight Analysis Framework (FAF). Ohio felt that the Freight Impacts study was in line with the freight planning efforts being emphasized by FHWA.

How Was the Plan Prepared?

The study first undertook a review of national freight trends and issues, as an understanding of these issues and how they may affect freight movements in Ohio, is important for context. Information on Ohio's 1998 freight flows was then obtained from the Reebie Associates' TRANSEARCH Domestic database, which provided county-to-county information on commodity tonnage moving into, out of, through, and within Ohio on all modes. To enable the completion of a more comprehensive freight profile for the State, and to allow the data available from TRANSEARCH to be used to assess the ways in which freight vehicles were using the State's transportation system, the TRANSEARCH data were manipulated in several ways:

- So that the value of these commodity flows could be analyzed, ODOT developed factors to convert annual tonnage into annual value using the Bureau of Transportation Statistics' Commodity Flow Survey;
- Factors to convert annual tonnage into annual trucks were developed from the Vehicle Inventory and Usage Survey (VIUS) conducted by the U.S. Bureau of the Census. These factors allowed ODOT to assess the number of trucks using the highway system; and
- Forecasts of freight flows for 2010 and 2020 were purchased from an economic consulting firm (Global Insights), allowing ODOT to assess how growth in freight traffic would affect its freight transportation system.

The freight trends and flows were analyzed to determine the changes in truck volumes on Ohio's highways. The impacts of changing truck volumes on Ohio's roadways were analyzed through four case studies: 1) Ohio Macro-Corridors, 2) I-75 Corridor, 3) Northern Ohio Rail/Highway Corridor, and 4) MORPC (Columbus) Region. Key freight issues were identified, and policy options and program or project actions were recommended for consideration by Ohio DOT.

Key Data Sources

The completion of the Freight Impacts Study depended on the purchase, manipulation, and analysis of several key data sources including:

- **Reebie TRANSEARCH Data** – These data were used as the base year data for the commodity flow analysis;
- **Global Insights Commodity Flow Forecast** – Forecast freight flows for 2010 and 2020 were used to assess how growth in freight traffic would affect the State's transportation system;
- **Vehicle Inventory and Use Survey Data** – VIUS data were used to derive distance and commodity payload factors so that daily truck trips could be calculated; and

- **Commodity Flow Survey Data** – These data were used to derive value per ton conversions for each commodity classification code, allowing ODOT to analyze the impact of the value of freight shipments as well as the weight of those shipments.

Critical Success Factors

There are several factors that contributed to the success of the Freight Impacts Study, including:

- **Involvement and Support of a High-Level Champion** – The successful completion of the Freight Impacts Study was driven to a large degree by the support of the ODOT director.
- **Involvement of the Private Sector** – As discussed above, the private sector can lend validity and expertise to a freight study. Buy-in and continued involvement of the private sector freight community is important in furthering a state freight planning program, as well.
- **Assembling the Right Freight Planning Team** – One key to the success of the Freight Impacts Study was that the consultant team and the State’s project team were “on the same page,” sharing the same vision for the study and how it would be used. ODOT could not emphasize enough the importance of assembling the right team when undertaking such an effort.
- **Integrating Study Results into the Planning Process** – A final key to the success of the Freight Impacts study was the fact that the results are still being used by the State to evaluate freight improvement projects; to justify highway spending to and request additional funding from the State legislature; to use as input to the statewide transportation model; and to use as an outreach tool to statewide and local transportation decision-makers, business leaders, and the general public to educate them as to the importance of freight movements in the State.

3.2.4 Trade Corridor Studies

States are increasingly aware of the link between freight transportation and statewide economic competitiveness. Trade corridor studies can help states more precisely define how freight transportation chokepoints and other inefficiencies can affect a state’s economic vitality. Trade corridor studies are also effective ways to identify key trade corridors, describe their deficiencies, and encourage investments in projects designed to improve these facilities. The I-5 Corridor/Columbia River Crossing Transportation Choke Points study, described below, is an example of such an effort.

Case Study – Regional Economic Effects of the I-5 Corridor/Columbia River Crossing Transportation Choke Points Study

Description

The Regional Economic Effects of the I-5 Corridor/Columbia River Crossing Transportation Choke Points study (I-5 Corridor study) was completed by the Oregon DOT in 2003. The study identified the key chokepoints along the I-5 Corridor and evaluated their effects on three areas:

1. **Local chokepoints** that hinder effective goods movement through the cities of Portland, Oregon and Vancouver, Washington as well as through the Ports of Portland and Vancouver and the Portland International Airport;
2. **Regional economic effects** on truck and rail movements into, out of, and through the Pacific Northwest; and
3. **Economic effects on five key regional industries:** lumber, wood, and paper products; transportation equipment manufacturing; agriculture; high-technology; and distribution and warehousing.

Motivation

The I-5 Corridor study was motivated by several factors. The first was the work of the I-5 Transportation and Trade Partnership, a consortium of state and local transportation planning organizations, elected officials, and stakeholders from the Portland-Vancouver area. This consortium identified transportation improvements needed to relieve highway and rail congestion at the I-5 Corridor/Columbia River crossings through the development of its Strategic Plan in 2002. Recommendations included improvements to the region's highway, transit, and freight rail systems. By investigating the regional economic impacts of the I-5 Corridor/Columbia River crossing transportation chokepoints, the I-5 Corridor study supported the need for the Strategic Plan's recommended improvements.

The study was also motivated by recent trade and transportation trends in the region. Both ODOT and the I-5 Partnership had evaluated peak-period congestion on the I-5/Columbia River highway bridge and realized that in the absence of improvements, the current four-hour peak period was expected to increase to 10 hours by 2020, increasing annual delay costs for trucking from \$14 million to \$34 million. ODOT also realized that the regional economy is built on transportation-intensive industries, such as agriculture, construction, transportation and utilities, wholesale and retail trade, and manufacturing, which make up 54 percent of the Oregon-Washington economy. Reliable transportation is essential to the Pacific Northwest businesses moving and selling products to California, East Coast, and international markets.

How Was the Study Developed?

The study started by placing the I-5 Corridor in local, regional, and national contexts by describing its impact on local, regional, and national goods movements. The increasingly national and international nature of freight shipments have increased the influence of major trade corridors such as the I-5 Corridor in the regional and national transportation systems. Understanding a corridor's regional and national context is important when conducting a trade corridor study.

Next, several key industries that already or are expected to drive the future of Oregon's economy were identified. These industries included traditional resource-based industries such as agriculture and forestry, as well as emerging industries including high-technology companies. The regional importance of these industries was estimated using a combination of Gross State Product information available from the U.S. Bureau of Economic Analysis and employment data and forecasts available from the U.S. Census Bureau. The transportation needs and logistics patterns of these industries were identified using a combination of data available from the U.S. Bureau of Transportation Statistics' Transportation Satellite Accounts as well as interviews

with key industry stakeholders. Finally, origin-destination (O-D) patterns of shipments in these industries were identified using Reebie Associates' TRANSEARCH database.

Key Data Sources

A variety of data from different public and private sources was used in the development of the I-5 Corridor study. These data were supplemented with information obtained from a series of interviews with private sector freight stakeholders. Data sources used in the development of the I-5 Corridor study include:

- **Reebie Associates' TRANSEARCH data** were used to describe regional origins and destinations of shipments for the region's key industries;
- **Portland Metro Area Commodity Flow Database** – A regional stakeholder partnership including the MPOs of Portland and Vancouver, the Washington and Oregon DOTs, the Port of Portland, and the Port of Vancouver, has developed a regional commodity flow database and forecast. This database and forecast is a critical input to the Portland MPO's truck model and is used by each of the partners in the evaluation of freight issues. The database/forecast was first developed in 1999 and was updated in 2002 by a consultant team who used Reebie TRANSEARCH data, data from the National Agricultural Statistics Service, data from the U.S. Economic Census, and data from various state, local, and industry sources.
- **Bureau of Transportation Statistics Transportation Satellite Accounts** were used to describe the transportation costs of each key industry; and
- **Bureau of Economic Analysis Regional Accounts and U.S. Census Employment data** were used to estimate the economic importance of key Oregon industries.

Critical Success Factors

There were several factors that contributed to the success of the I-5 Corridor study, including:

- **Placing the Corridor in a Multi-State Regional Context** – As discussed above, it is important to understand how an individual corridor fits within a regional and national context when conducting a trade corridor study. This was particularly true for the I-5 Corridor study, which was aimed at building an economic case to support the need for corridor improvements identified by the I-5 Partnership. The regional and national context involves determining the geographic dimensions of the various freight/commodity markets, the modal characteristics of the flows and the key modal facilities both within and outside the corridor, and a general understanding of the supply chain characteristics of the affected industries.
- **Linking Transportation Improvements to Key Industries** – Another key element to the success of the I-5 Corridor study was the identification of key industries affecting the future of the State and describing their transportation needs and costs. Quantifying the costs of transportation system unreliability and inefficiencies to system users is an effective way to build support for funding and implementing freight improvement projects.

3.3 Best Practices in Organizational Structure

State DOT technical staff are an important resource in successful freight planning programs. Many state DOTs are organized modally, however, typically maintaining separate divisions for the highway, rail, air, and water modes. These organizational structures often hinder cross-modal communication and can lead to fragmented freight planning programs. In such organizations, potential freight improvement projects sometimes lack a single advocate, as the responsibility for freight planning can cut across several divisions. Further complicating statewide freight planning efforts is the fact that while many state DOT transportation planners hold advanced degrees in transportation or planning, few have formal training in freight planning, issues, and concerns.

Table 3.3 Summary of Organizational Case Studies

Case Study	Motivation	Level of Effort	Cost	Outcomes
Maine Office of Freight Transportation	<ul style="list-style-type: none"> • DOT commissioner-driven • Effort to address transportation by function rather than by mode 	High	High	<ul style="list-style-type: none"> • Construction of intermodal facilities in four locations around state • Enhance coordination with other state departments • Increased visibility of freight issues
Vermont Agency of Transportation	<ul style="list-style-type: none"> • Legislative mandate to designate truck network • Desire to enhance understanding of freight movements 	High	Low	<ul style="list-style-type: none"> • Completion of statewide and regional freight studies • Increased visibility of freight issues

State DOTs with dedicated freight planning staff often have an easier time identifying, planning, and programming freight improvement projects. The Maine DOT (MDOT) is an example of a state DOT that has successfully integrated freight interests into its transportation planning programs through the use of dedicated freight planning personnel.

Case Study – Maine Office of Freight Transportation

Description

Prior to 1996, MDOT's Bureau of Transportation Services maintained individual divisions for the highway, rail, transit, water, and air modes. Recognizing the need to address freight transportation issues more holistically, however, MDOT dissolved the Bureau of Transportation Services, dividing its responsibilities between the newly formed Offices of Freight and Passenger Transportation. The Office of Freight Transportation (OFT) is charged with developing a free-flowing intermodal freight network that can offer Maine shippers greater choice among modes, increased productivity, environmental benefits and reduced transportation costs

by developing policies, programs, and projects to improve freight transportation operations throughout the State. The OFT is functionally divided into a planning section; a program management section (responsible for managing special projects and operations); and a development/marketing section, which advocates new freight ideas and technologies and implements economic development strategies.

Motivation

The reorganization of the DOT was spearheaded by the now former DOT commissioner who, with the support of the governor, wanted to move the DOT from a mode-based organization to a function-based one that would be more client-focused. The reorganization served two purposes: it allowed the department to address issues by function rather than by mode and it “flattened” the organization, reducing the number of managers. The latter was especially important because the Maine state government in 1996 was in the midst of a productivity improvement program to make better use of state funding and improve the efficiency of state government.

What Has the Reorganization Accomplished?

Because its organizational structure allows it to view freight transportation as a system, rather than as individual modes, the Maine OFT has been successful in identifying projects and policies that improve the connectivity between the various freight transportation modes as well as how improvement projects that benefit one mode can impact the operations of another. Maine OFT has been instrumental in overseeing the construction of intermodal facilities in Presque Isle, Bangor, Waterville, Jackman, and Houlton, Maine. In each case, Maine OFT personnel were able to foster public-private partnerships, provide funding support, and ensure due attention was given to needed intermodal access improvements to complement these new facilities.

The formation of the Office of Freight Transportation has also allowed freight and freight issues to be more visible to the general public and the State legislature. It has allowed the DOT to think more systematically. Before reorganization, the seaport modal office and the rail modal office may not have discussed ways to improve on-dock rail access to the State’s seaports. Since reorganization, the rail and seaport managers have been able to more easily leverage their investments and projects to improve transportation more holistically.

Finally, because of its organizational structure, the Maine OFT is better able to coordinate its planning activities with the business development efforts of the Department of Economic and Community Development and the Maine International Trade Center. In fact, one of Maine OFT’s current initiatives involves the construction of a “last mile” of rail track in order to provide rail access to a wood products manufacturing facility to be constructed on an abandoned air base.

Critical Success Factors

There are several factors that contributed to the successful reorganization of the Maine DOT, including:

- **Staff Size** – While DOT reorganization could be replicated by other states, Maine had the advantage of having a relatively small staff (the reorganized freight office consists of seven

staff members), easing the reorganization efforts. Reorganization may not be as smooth or easy in a larger state.

- **Multiple Funding Sources** – One of the reasons that the Office of Freight has been so successful – and has been able to maintain its staff levels even through budget cuts – is the fact that the office is funded by multiple sources, including highway, rail, and marine program funding.

Case Study – Vermont Agency of Transportation

Description

The Vermont Agency of Transportation (VTrans) is divided into four divisions (Finance and Administration, Program Development, Operations, Policy and Planning) and the Department of Motor Vehicles. The agency's freight planning activities typically occur within the Policy and Planning division. While VTrans does not maintain dedicated freight planning staff, there are two staff members that handle freight issues for the agency.

What Has Been Accomplished?

VTrans has undertaken several freight planning activities, including:

- **Vermont Truck Network Study** – In 1998, VTrans was tasked to support the Vermont Legislature in designating a statewide truck network, along which commercial truck-trailer combinations less than 72 feet would be exempt from obtaining a permit. This network was designated in 2000. The momentum and freight visibility generated by this effort allowed VTrans to begin other statewide freight studies to complement this effort and enhance the State's understanding of statewide freight movements.
- **Vermont Statewide Freight Study** – The Statewide Freight Study was an effort to develop a better understanding of the freight transportation system in Vermont; acknowledge and address public concerns regarding specific freight movement practices; provide data that can be used to preserve and improve the transportation system; expand the tools available for freight planning efforts; and begin to identify and prioritize future investments in the freight transportation system. The study included a detailed commodity flow profile and the development of a methodology for evaluating freight projects.
- **Truck Freight Crossing the Canada-United States Border** – In addition to these in-house efforts, VTrans has been an active participant in regional coalitions, including the I-95 Corridor Coalition, the Eastern Border Transportation Coalition (EBTC), the New England Governors' Conference, and the Northeast Association of State Transportation Officials (NASTO). The Truck Freight Crossing the Canada – U.S. Border was a study conducted by the EBTC that gave VTrans a better understanding of trade patterns between the United States and Canada and how they impact Vermont's transportation system. The agency plans to utilize that information during subsequent long range plan updates.

The two freight planning personnel at VTrans are not considered "freight planners," as they do not spend 100 percent of their time addressing freight issues, nor does Vermont have a formal statewide freight planning program. However, these two staff have proven to be critical in advancing the state's freight planning activities for two reasons. First, they have been able to take advantage of the attention to freight-related issues generated by the designation of the

statewide truck network and parlay that interest into the completion of a statewide freight study. Secondly, they have actively sought out opportunities to partner with neighboring states and provinces as well as multi-jurisdictional coalitions, such as the EBTC, to conduct projects and studies that further their understanding of how Vermont fits within a regional freight context. Though VTrans does not have a formal statewide freight planning program, these efforts have allowed the agency to build a database of freight information which can be used to identify problems and develop potential solutions.

Critical Success Factors

State DOTs with freight planning staff often have an easier time identifying, planning, and programming freight improvement projects. Though Vermont does not maintain dedicated freight planning staff, there are two staff members that are well-versed in the state's freight issues. There are two key factors that have allowed these staff to advance the understanding of freight issues in the state:

- **Participation in Multi-Jurisdictional Coalitions** – As discussed above, VTrans staff have actively sought out opportunities to partner with multi-jurisdictional coalitions as well as neighboring states and provinces to conduct freight-related projects and studies. These efforts have allowed VTrans to conduct the freight planning activities, including the Truck Freight Crossing the Canada-United States Border study, that they normally would not have the funding or staff resources to complete. These and other studies are helpful in helping states understand the regional nature of freight movements and how an individual state's transportation system can be impacted by such regional movements. These partnerships can also raise the visibility of freight issues among transportation decision-makers and lead to other freight planning activities.
- **Ability to Build on Existing Activities** – The freight planning efforts in Vermont grew out of the legislative mandate to assist in the designation of a statewide truck network. VTrans staff have been able to take advantage of the interest generated by the designation of the statewide truck network and parlay that interest into the completion of a statewide freight study and other freight planning activities. The ability to sustain interest in freight issues has been a key element to the continued success of VTrans freight planning activities.

3.4 Best Practices in Data and Analytical Tools

Effective freight planning starts with good data. The lack of affordable, disaggregate, commodity flow data is a particular concern for states. As discussed earlier, while the U.S. DOT Bureau of Transportation Statistics conducts and publishes the national Commodity Flow Survey (CFS), these data on commodity flow patterns are aggregated and reported for large areas (e.g., states and large metropolitan areas). This often limits the usefulness of the data for state and metropolitan planning, especially for modeling and forecasting truck trips.

Freight modeling is another important aspect of a successful freight planning program, though freight modeling capabilities at many states are still limited. Unlike passenger movements, the underlying factors driving freight shipment patterns and mode choice vary considerably across different industries and commodities. These factors are less readily understood than the factors that affect passenger travel. Consequently, many states find it difficult to adapt traditional automobile and transit modeling techniques to predict freight movements. Truck freight

movements are often represented as a constant percentage of passenger car movements (with trucks counted as equivalent to two or three cars depending on the mix of truck types and sizes) rather than modeled as a separate mode. This approach is adequate for estimating overall volumes and travel time effects, but the impacts and benefits of transportation improvements cannot be traced back to specific types of trucks and the industries they serve.

Table 3.4 Summary of Data and Analytical Tool Case Studies

Case Study	Quantitative Data Required	Qualitative Data Required	Level of Effort	Cost	Outcomes
Oregon DOT Freight Data and Analysis Program	<ul style="list-style-type: none"> • Base Year Commodity Flow Data (Reebie) • Commodity Flow Forecasts (Global Insight) • Commodity Flow Survey (BTS) • Census of Manufactures, Census of Wholesale Trade (U.S. Census) 	<ul style="list-style-type: none"> • None 	High	High	<ul style="list-style-type: none"> • Incorporation of truck movements into integrated land use/travel demand model • Statewide commodity flow database with commodity-specific forecasts
Montana Highway Reconfiguration Study	<ul style="list-style-type: none"> • Base Year Commodity Flow Data (Reebie) • FHWA Freight Analysis Framework data • Highway Performance Monitoring System (HPMS) data • IMPLAN Input-Output Model • REMI Economic Model • GIS road network data 	<ul style="list-style-type: none"> • Interviews with key industry stakeholders to develop industry profiles 	High	High	<ul style="list-style-type: none"> • Suite of analytical tools used to evaluate economic benefits of proposed highway improvements
Florida Intermodal Statewide Highway Freight Model	<ul style="list-style-type: none"> • Base Year Commodity Flow Data (Reebie) • Base Year Population data (U.S. Census) • Base Year Employment data (U.S. Census) • Forecast population and employment data (Florida Long-Term Economic Forecast) • Truck Payload Factors (VIUS) 	<ul style="list-style-type: none"> • None 	High	High	<ul style="list-style-type: none"> • Model used by FDOT's System Planning Office in the development of long-range plans; work is underway to adapt the model for use in metropolitan planning programs

Case Study – Oregon DOT Freight Data and Analysis Programs

Description

Oregon DOT has undertaken a number of data and analysis projects to provide a base of information to support its freight planning programs. The most significant of these include:

- The analysis of freight flows and activity contained in the report, *Freight Moves the Oregon Economy*;
- The freight elements of the Oregon Statewide Travel Demand Model; and
- The development of a statewide commodity flow database.

Motivation

Freight Moves the Oregon Economy was prepared to help implement the Oregon Transportation Plan and various modal plans, such as the Oregon Highway Plan, and to support and guide the activities of the Oregon Freight Advisory Committee. The Oregon Transportation Plan is the overall statewide long-range plan. It incorporates modal elements that are more detailed descriptions of the statewide plan; the Oregon Highway Plan is one of these elements. When ODOT developed the long-range plan in response to state and Federal requirements it recognized that freight and goods movement issues needed to be incorporated in the agency's system planning efforts. ODOT undertook the study *Freight Moves the Oregon Economy* to better understand the economic drivers behind freight movement in the State and to further develop its understanding of the elements in the State transportation system that were most critical to goods movement.

For a number of years the Oregon DOT has been improving their transportation modeling for planning and project analysis. At the beginning of this process they decided to develop an integrated land use/transportation model that is now in its second generation of development. Because it represents trade relationships between economic sectors and the demand for residential, commercial, and industrial land as a primary driver behind transportation trip distribution, the model offers a particularly innovative method for addressing commodity flows and commercial vehicle demand. Thus, as the model is further developed, it is expected to provide a comprehensive forecasting and analysis capability for people and goods movement in Oregon.

The State's Freight Advisory Committee was created by a former ODOT director in 1998 and was formally authorized by an act of the State legislature in 2001. The Advisory Committee needed information to develop a sense of direction as to what elements of the freight system should be the focus of their efforts. The report provides information about commodities, modes, and network elements that are most critical to the state's economy and that have the biggest impacts on the State's transportation system. A series of "next steps" in the report's final chapter further helps support and guide freight-related activities of the Freight Advisory Committee and ODOT staff.

ODOT is continuing the effort initiated by *Freight Moves the Oregon Economy* with a variety of activities, including the development of a statewide commodity flow database and forecast. The objective of the commodity flow database and forecast development effort is threefold:

1. To provide information to support the activities of the Freight Advisory Committee as well as ODOT's ongoing freight planning and programming activities;
2. To provide the core of information that will be needed in the upcoming update of the state-wide transportation plan; and
3. To provide data to support the development and calibration of freight elements and forecasts in the statewide model.

The timing of the commodity flow database development builds on a recent project in which ODOT partnered with the Port of Portland, Portland Metro (the regional MPO), and several other stakeholders in the Portland/Vancouver (Washington) metropolitan area. The Portland project developed an update to the regional commodity flow database and forecast which Portland-area freight planners use extensively in regional planning. ODOT decided to take advantage of the momentum developed with the Portland project and to produce a statewide database that was consistent with the Portland-area data and the methodology used to develop the data.

How Were the Data and Analysis Tools Prepared?

Freight Moves the Oregon Economy was an in-house effort that relied heavily on readily available databases, mostly from the Federal government and ongoing state data programs such as the ODOT vehicle classification counts on state highways. ODOT relied on the U.S. Commodity Flow Survey (CFS) to develop data on the characteristics of state-level freight flows. The CFS indicates the most significant commodity movements in terms of tonnage, value, and ton-miles. It also provides data on modes, O-D patterns (at the state-to-state level), and length of haul. These data provide a good high-level overview of the state freight system. Using inputs from the various modal offices, ODOT's report provided a profile of the freight network in state. STB's Carload Waybill Sample was used to characterize rail freight movements. ODOT also worked with industry groups to obtain data that were useful in characterizing freight shipments and with the FHWA to better understand state-level freight flows, including data for Oregon produced as part of the Freight Analysis Framework. This interplay between Oregon, other states, and the Federal government has helped strengthen freight data programs for planning purposes.

The statewide commodity flow database and forecast project is expected to advance the freight data programs in Oregon significantly. The approach essentially replicates the Portland metro area commodity flow data and forecast methodology on a statewide basis. The project starts with Reebe TRANSEARCH data. These data are provided as county-to-county flows with two-digit Standard Transportation Commodity Classification (STCC) detail for flows with one or both ends of the flow in Oregon and more aggregate regions external to Oregon. The Reebe data were purchased for a 1997 base year in order to be consistent with the last CFS data. This was also less expensive than purchasing current year data. The consultant team producing the base-year database went through a series of detailed checks and comparisons of the Reebe data with other sources to check the accuracy of overall flow volumes. These sources included the CFS, the U.S. Census of Manufactures and the U.S. Census of Wholesale Trade. Once this was done, the consultant team used a variety of local sources to supplement flows of non-manufactured products (primarily agriculture, mining, and solid waste flows). These data came from state and county agriculture departments, state geology and mining data resources, county waste management agencies, and other sources. Local and statewide industry

associations also were a valuable resource for obtaining production and consumption patterns and statistics that were used to establish control totals for different commodities at different levels of geographic detail.

Oregon is in the process of developing an integrated land use/travel demand model that incorporates truck movements in an economic-based model. The model forecasts land use by use type and projects development in each category based on market and economic factors. The model generates truck activity as a function of economic activity in an input-output-based model. The input-output approach links the economic activities that produce truck activity in trade relationships that have both a trip generation and a trip distribution element.

The model relies heavily on economic analysis and forecasts that go well beyond those associated with more traditional four-step travel demand models. This has created links between the transportation modeling staff and the economic forecasting community within the State government that are critical to supporting this type of model. The modeling effort has also created the impetus for collecting additional data on truck movements in the State highway system. These data were collected in the 1990s when ODOT conducted a program of roadside intercept surveys to develop data on truck origins and destinations, commodity, and cargo weight patterns. These data have been used in the development of the Portland and statewide commodity flow database as well as supporting the model development.

The commercial transport component of the Oregon model is highly complex. At its core is a sophisticated set of econometric models that forecast trade between industry sectors and consumers linked through input output relationships. The spatial distribution of production and consumption activities is based on a land use allocation model that shifts activities over time in response to land development markets and feeds this information back into the economic trade relationships and product pricing models. This establishes commodity flows completely endogenous to the model. The commercial transport model uses information from the Federal Commodity Flow Survey on the distribution of shipment sizes and simulates trips between production locations, exchange locations, and consumption locations in order to satisfy the total aggregate commodity flow relationships. The model determines the size of truck used and the timing of trips on the network. Ultimately, good commodity flow data and truck classification counts will be critical to validating the model results.

The commodity flow forecasts are based on economic and trade forecasts developed by Global Insights, Inc. (formerly DRI-WEFA). Global Insights uses various data sources and forecasts from its trade, industry, and regional forecasting services. These economic forecasts generate growth rates for specific flows (commodity and O-D pairs). The general approach to forecasting modal activity is to assume constant mode shares by commodity/O-D pair.

Key Data Sources

The data and analysis tools rely on several key data sources and software, several of which needed to be purchased:

- **Reebie TRANSEARCH Data** – These data were used as the base year data for the commodity flow analysis;
- **Global Insights Commodity Flow Forecast** – These economic forecasts were used to generate growth rates for specific flows (commodity and O-D pairs);

- **STB's Carload Waybill Sample** – These data were used to characterize rail freight movements within the State; and
- **Industry-specific Data Sources** – ODOT worked closely with industry groups, state and county agriculture departments, state geology and mining data resources, county waste management agencies, and other sources to obtain data that were useful in characterizing freight shipments in the State and to supplement flows of non-manufactured products (primarily agriculture, mining, and waste flows). Local and statewide industry associations have proven to be a valuable resource for obtaining production and consumption statistics for use in commodity flow database development.

Critical Success Factors

There are several factors that have contributed to the success of ODOT's freight data collection and analysis activities, including:

- **Coordination with MPOs and Other Agencies** – ODOT recently partnered with the Portland Metro, the regional MPO; the Port of Portland; and other agencies to develop an update to the Portland-area commodity flow database and forecast. By building on the momentum and methodology generated from the Portland-area effort, ODOT produced statewide data that are consistent with the Portland data, ensuring that freight planners and other users throughout the state have access to a consistent set of commodity flow data.
- **Linking Transportation Data Collection/Forecasting with Economic Development Efforts** – Oregon's freight data collection program has also enhanced the communication between transportation modeling staff and the economic forecasting community within the State government. Strengthening the link between freight transportation and economic competitiveness is a key component in gathering support for statewide freight planning efforts.
- **Linking Freight Data Collection with Existing Planning Efforts** – Oregon's freight data collection efforts have been and continue to be used to support several of ODOT's other planning efforts, including the statewide modeling program, the statewide transportation plan, and the statewide highway system plan. Ensuring that freight data collected are useful in a variety of efforts is an effective way to build support for the freight planning program.

The previous case study provides an example of a state that developed a formal freight model that was largely dependent on detailed commodity flow and economic data and forecasts. Other states have used combinations of public and private datasets to produce analytical tools for freight planning. The following case study provides an example of such a technique.

Case Study – Montana Highway Reconfiguration Study

Description of the Planning Activity

Montana DOT (MDT) has contracted for the development of a suite of analytical tools that can be used to evaluate the economic benefits of proposed highway projects. The tools are intended to become part of MDT's annual Performance Programming Process (P3) analysis of prospective projects for Transportation Commission consideration and inclusion in the Statewide Transportation Improvement Program (STIP). P3 currently includes four evaluation criteria: congestion relief, safety, bridge management, and pavement management. The

Reconfiguration Study will provide MDT and the Transportation Commission with the tools necessary to include economic benefits as an added criterion.

The original purpose of the study was to evaluate the impact of reconfiguring Montana's two-lane highway network on Montana's economy. The tools also provide an understanding of the relationship between highway capacity and economic development, provide data and models for quantifying that relationship, and estimate the likely economic impacts of a range of highway improvements within both a constrained and unconstrained fiscal environment.

The basic approach is to map commodity flow data and forecasts to the highway network in such a way that it is possible to identify which commodity shipments would be affected by a highway improvement and to then determine the producing and consuming industries of these commodities. This information and an analysis of the transportation benefits of the improvement are used to calculate regional economic impacts. In addition, a profile of the affected industries that are most dependent on transportation or those that could be recruited to the area affected is used to determine the economic development potential of the improvement taking into account collateral economic development support that might be needed to realize this potential.

The modeling tools use a combination of commodity flow data, GIS mapping and routing tools, economic forecasting tools and data, and economic impact analysis models.

Motivation for the Planning Activity

Governor Judy Martz, after consultation with DOT Director David Galt, directed the Department (MDT) to conduct a study examining the economic impact of reconfiguring the State's major two-lane highways. Governor Martz expressed the following concerns in deciding to direct the Study:

"In my campaign for governor, I indicated that the development of economic corridors was a critical component of a visionary, long-term economic stimulus effort. The safe and efficient movement of goods and services on four-lane highways will bring more economic opportunities to communities throughout Montana, which is why I have directed the Department to study the exciting possibility for highway expansion throughout the state.... We are making economic growth our priority and we must ensure that all areas of Montana are considered for highway construction dollars."

DOT Director Galt added the following comments regarding the motivation of the proposed Study:

"The need for the Study became apparent during the 2001 legislative session. In light of Senate Bill 3 requiring MDT to plan for a four-lane highway generally along U.S. Highway 2 – and because of growing interest in construction of a four-lane route between Billings and Great Falls – the Governor and I have been discussing the most appropriate means of evaluating potential impact of highway expansion on the state."

The Study is being directed by the Reconfiguration Study Steering Committee (RSSC), which is composed of private business owners, mayors, economic development officials, and senior MDT officials.

How Was the Tool Prepared?

The Montana Reconfiguration Study is being conducted by a consultant team. The methodology follows a series of steps that link various data sources, analytical modeling software, and GIS and database tools. The methodology works as follows:

Commodity Flow Analysis Component

1. Locate the improvement on an electronic network map of Montana roadways stored on a geographical information system (GIS). The tool includes an extensive GIS database linked to the Montana highway network and the relevant regions throughout North America.
2. Identify what commodities are being shipped and person trips on the roadway that will have the proposed improvements and forecast the growth of these commodities. Detailed commodity flow data for Montana were obtained and a commodity forecasting module was developed within the tool.
3. Locate the origins and destinations of these commodities and identify the industries that are involved in shipping and receiving.

Industry Analysis Component

4. Identify 14 industry sectors in Montana that export their products and rely on surface transportation for significant amounts of their inputs and/or outputs. Focused profiles of each industry were developed that summarize their performance and dependence on various modes of freight transportation.
5. Identify new industry sectors and new businesses that are not present in Montana at present but could be recruited if the conditions became attractive. The consultant team relied on the knowledge of Montana's economic development officials to inform a business attraction model. The model is nested within the tool to quantify additional goods movement from these new businesses.
6. Estimate each industry's direct benefits, including travel time reductions, operating cost reductions, and safety benefits from the proposed transportation improvement (Step 3) based on its industry profile (Step 4) and the change in its shipping and receiving operations (Step 2).

Transportation Economic Benefit

7. Determine the health of the industry (Step 4) and its needs for other economic development assistance (i.e., collateral interventions). This assessment will determine if the businesses being helped are in industries that are declining or expanding. Thus, MDT gets an indication of how effective the transportation investment may be given the broader business climate.
8. Input each industry's direct benefits (Step 6) plus the additional business location estimated with the business attraction model (Step 5) into a multi-regional REMI model. REMI is an economic model that will determine how direct improvements to a firm's access to inputs

or customers will ripple through the regional economy to create jobs, increase personal income, and expand the region's gross product. This result will provide MDT with an estimate of the full economic benefits associated with a highway improvement.

9. Estimate the costs of each proposed project using a cost model based on unit costs taken from similar projects recently completed in Montana.
10. If deemed appropriate, compare benefits and costs for each project.

Key Data Sources

The tool uses several key data sources and software, several of which needed to be purchased:

- **Reebie TRANSEARCH Data** – These data were used as the base year data for the commodity flow analysis.
- **Freight Analysis Framework (FAF) Forecast** – These data provide flows of domestic and international commodities originating and terminating in the 50 states on four modes. The state-level FAF data were used to develop initial growth rates to forecast the commodity flows. These were allocated to counties using industry employment forecasts (purchased from Woods and Poole).
- **Highway Performance Monitoring System (HPMS) Data** – Dataset assembled from roadway information provided by state DOTs that provides information on the extent, condition, performance, use, and operating characteristics of United States highways. HPMS data were used to load passenger vehicles on the highway network.
- **IMPLAN Input-Output Model** – These were used to get county-level consumption shares of commodities by industry for allocating inbound forecast flows to counties.
- **REMI** – A regional economic impact modeling tool.

Critical Success Factors

Because the Montana Highway Reconfiguration Study is still underway, future use and the lasting impact of its associated analysis tools are difficult to evaluate. However, because the tools were specifically developed to be consistent with the State's Performance Programming Process (P3), it is likely that they will continue to be used by the State's transportation planners in analyzing and evaluating prospective improvement projects.

Case Study – Florida Intermodal Highway Freight Model

Description

FDOT's Office of Systems Planning recently developed a statewide intermodal highway freight model. This model serves as a planning tool for the identification and measurement of freight and truck activity within Florida and provides estimates of daily heavy truck trips on Florida's highway network for both base and future years.

Motivation

The Florida DOT has established a formal set of modeling steps, procedures, software, file formats, and guidelines, collectively known as the Florida Standard Urban Transportation Model Structure (FSUTMS) to guide travel demand forecasting throughout the state. The Florida Model Task Force (MTF), which consists of representatives from the state's MPOs, FDOT Districts, transit agencies, FHWA, the Florida Department of Community Affairs, and the Florida Department of Environmental Protection, establishes policy directions and procedural guidelines for FSUTMS. The Florida Model Task Force helps to ensure that the development of new modeling techniques follow a consistent approach throughout the state.

In response to the freight planning requirements of ISTEA and TEA-21 and with the realization that the existing FSUTMS did not fully account for truck movements along the state's highway network, FDOT's Systems Planning Office, along with the MTF, decided to develop the Florida Intermodal Statewide Highway Freight Model, which was an attempt to utilize more sophisticated approaches to model truck movements through the use of economic development related variables, such as dwelling units and employment by sector.

How Were the Data and Analysis Tools Prepared?

The development of the Florida Intermodal Statewide Highway Freight Model generally consisted of the traditional four-step modeling process of trip generation, trip distribution, mode split, and traffic assignment. Specific steps in this general process included:

- **Obtain and Forecast Socioeconomic Data** – The movement of freight in Florida is a function of the social and economic characteristics of the State. The socioeconomic and demographic data required for development of the Florida Intermodal Statewide Highway Freight Model include population and employment. These data were used as input to the trip generation step of the model. Base year values for these data were used to calibrate the trip generation (production and attraction) equations; forecast values for these data are then used in the generation (production and attraction) equations to predict the number of freight trips that will be generated in future years. Base year population data were obtained from the U.S. Census; forecast data were obtained from Florida's Long-Term Economic Forecast. Employment data were collected from a variety of sources, including County Business Patterns, Regional Economic Information System, and Florida MPOs and local planning departments. Future year employment data were obtained from Florida's Long-Term Economic Forecast.
- **Obtain Freight Modal Networks and Develop Zone Structure** – Networks consisting of routes, links, nodes, and terminals were required for each mode included in the model. Networks included in the model were drawn from scratch or modified from existing sources, such as existing statewide travel demand models, the National Transportation Atlas Database, and the National Highway and Rail Planning Networks. The Florida Intermodal Statewide Highway Freight Model was designed to use the same Traffic Analysis Zone (TAZ) system of the current Florida statewide passenger model, allowing easy updates to both models.
- **Identify and Aggregate Key Commodity Groups** – Vehicle (truck) traffic levels are derived from the movement of commodities. Thus, a good grouping of commodities is necessary. The TRANSEARCH commodity flow database purchased from Reebie Associates for the development of the Florida Intermodal Statewide Highway Freight Model included

40 separate commodity classifications. In order to develop a model that reflected the economy of Florida, the top commodity groups by tonnage were identified. Each of the commodity classifications were then assigned to one of 14 commodity groupings to facilitate model development.

- **Relate Commodity Groups to Industrial Sectors or Economic Indicators and Develop Production and Attraction Equations** – Separate economic indicators were adopted for production and consumption (attraction) of each commodity. Industry-specific employment data were generally used to estimate production of commodities; population data were used to estimate consumption (attraction) of commodities. Using regression analysis, these relationships were quantified, resulting in the development of production and attraction equations for each commodity group.
- **Identify Special Freight Generators** – As part of the development of the Statewide Intermodal Highway Freight Model, Florida’s “special freight generators” were identified. Special generators were defined as those areas that produced significant amounts of water or air tonnage that resulted in highway movements by truck. The special generator seaports on this list included several of the State’s designated deepwater ports (as defined by Chapter 311, Florida Statutes) and the three largest specialty ports, which typically handle commodities such as coal, lumber, fuel oil, or utility poles.
- **Forecast Growth in Industrial Sectors** – Forecast values for employment and population were used in the production and attraction equations to predict the number of freight trips that will be generated in future years. Growth forecasts were obtained from a variety of sources, including the Bureau of Economic Analysis and Florida’s Long-Term Economic Forecast.
- **Convert Commodity Tonnage Values to Truck Volumes** – Payload data are necessary to convert tonnage forecasts to daily truck volumes required for highway assignment. Payload factors were derived from the Vehicle Inventory and Use Survey (VIUS). The appropriate records were extracted from the Florida records in VIUS to allow distance and commodity payload factors to be calculated. These calculations also took into account the percentage of empty shipments along Florida’s highways. These truck volumes were then converted into trucks per day by dividing annual truck volumes by the number of vehicle operation days in a year.

The resulting model is currently being used by FDOT’s System Planning Office in the development of long-range plans. In addition, FDOT is working with its local agency partners to adapt the model for use in metropolitan freight planning programs.

Key Data Sources

The development of the Florida Intermodal Statewide Freight Model relied on several key data sources and software, several of which needed to be purchased:

- **Reebie TRANSEARCH Data** – These data were used as the base year data for the commodity flow analysis;
- **Socioeconomic Data** – Socioeconomic data, available from both national and Florida sources, were used to develop generation and attraction equations for each commodity group and forecast future freight flows; and
- **Vehicle Inventory and Use Survey Data** – VIUS data were used to derive distance and commodity payload factors so that daily truck trips could be calculated for use in the model.

Critical Success Factors

There are two key factors that have contributed to the success of the Florida Intermodal Statewide Freight Model, including:

1. **Coordination with MPOs and Other Stakeholders** – By developing the Florida Statewide Intermodal Freight Model in conjunction with the Florida Model Task Force, FDOT was able to ensure that the resulting model not only met statewide freight planning needs, but that it could also be adapted for use in regional and metropolitan travel demand modeling efforts. As a result, several of Florida’s MPOs have developed specialized modeling procedures to address freight issues and freight modeling techniques have recently been incorporated into two of Florida’s most sophisticated regional travel forecasting models.
2. **Actively Incorporating Freight into Existing Travel Demand Modeling Structure** – As discussed above, FDOT has established a formal set of modeling steps, procedures, software, file formats, and guidelines, collectively known as the Florida Standard Urban Transportation Model Structure (FSUTMS) to guide travel demand forecasting throughout the state. By incorporating freight issues into this structure, FDOT has ensured that freight movements will be modeled consistently throughout the state, facilitating statewide, regional, and metropolitan freight planning efforts.

3.5 Best Practices in Private Sector Participation

The private sector can often provide the training, background, and expertise necessary to conduct meaningful freight planning at the state level. Establishing and maintaining relationships with the private sector is often difficult, however, as the private sector sometimes perceives the public sector transportation planning process as slow and inflexible. Despite these cultural differences, several states, including the Florida and Minnesota DOTs, have successfully integrated private sector freight stakeholders into their freight planning processes.

Table 3.5 Summary of Private Sector Participation Case Studies

Case Study	Motivation	Membership	Level of Effort	Cost	Outcomes
Florida Freight Stakeholders Task Force	Governor-driven effort	<ul style="list-style-type: none"> • Private shippers and carriers • MPOs/cities • FDOT • Florida Department of Community Affairs • Port/Airport Authorities 	High	High	<ul style="list-style-type: none"> • Identification of Florida Strategic Freight Network • Development of freight project evaluation criteria and methodology • Prioritized list of freight-specific projects for fast-track funding • Freight policy guidance for inclusion in 2020 Statewide Transportation Plan
Minnesota Freight Advisory Committee	DOT Commissioner-driven	<ul style="list-style-type: none"> • Private sector shippers and carriers • Industry Associations • Economic development agencies 	Medium	Medium	<ul style="list-style-type: none"> • Freight-specific performance measures • Statewide Freight Facilities Database • Freight policy guidance for inclusion in Statewide Transportation plan

Case Study – Florida Freight Stakeholders Task Force

Description

The Florida Freight Stakeholders Task Force, consisting of representatives from both the public and private sectors, was initiated by Governor Chiles and continued by the Governor Bush administration. The two primary objectives of this group were to identify, prioritize, and recommend freight transportation improvement projects for fast-track funding; and develop recommendations for the 2020 Florida Statewide Intermodal Systems Plan. The Center for Urban Transportation Research (CUTR) at the University of South Florida worked with the Task Force to identify and map a Florida Strategic Freight Network, to identify existing projects that benefit freight movement, to plot them on the freight network, and to consider a methodology that can be used to prioritize potential freight projects.

Motivation

The creation of the Freight Stakeholders Task Force was driven by then-Governor Lawton Chiles. Governor Chiles made freight and goods movement a high economic priority for the State and hosted an Intermodal Transportation Summit in 1998 to address goods movement and other important statewide transportation issues. The task force was formed as a result of that meeting.

How Was the Work of the Task Force Accomplished?

The Freight Stakeholders Task Force was unique in that it had a dedicated source of funding to use in the advancement of freight improvement projects. Ten million dollars were appropriated by the 1999 Florida Legislature and available to the Task Force to fast-track eligible freight improvement projects.

Before the Freight Stakeholders Task Force began to identify and prioritize freight projects, it identified the key facilities and corridors that support statewide freight movements through the development of the Florida Strategic Freight Network. This network includes the Florida Intrastate Highway System (FIHS); freight facilities including ports, air freight terminals, rail intermodal terminals and highway freight terminals; and connectors between the FIHS and the freight facilities. The Task Force worked with CUTR to define and map the freight network.

To guide the evaluation of potential freight improvement projects, the Task Force, along with CUTR, also developed a prioritization methodology. This methodology outlined three specific criteria to determine eligibility of projects. To be eligible for consideration, projects had to:

- Be located on the Strategic Freight Network;
- Facilitate freight movement; and
- Have a public benefit to cost ratio greater than one.

Once a project's eligibility was determined, it would be evaluated and ranked based on the following criteria:

- Benefit to cost ratio;
- Stage of development/environmental compliance;
- Time to complete project;
- Current level of service;
- Safety rating;
- Neighborhood impact of project; and
- Current freight volume.

Applications for fast-track funding were solicited from Task Force members, MPOs, ports, and airports. The response included applications for 17 projects totaling \$101.3 million.

Each application was reviewed and then prioritized using the methodology outlined above. The Task Force Executive Committee then reviewed the projects and made its recommendations. With resources limited to \$10 million, the overall goal was to maximize the value of the projects funded. The Task Force chose five projects for funding, and recommended five more for acceleration of funding within the normal work program.

In addition to the list of recommended projects, other Task Force recommendations were eventually converted to statute (341.053) by the Florida Legislature. This statute created an intermodal development program within the DOT and required a "plan to connect Florida's airports, deepwater seaports, rail systems serving both passenger and freight, and major

intermodal connectors to the Florida Intrastate Highway System facilities as the primary system for the movement of people and freight in this state.” This requirement led to the creation of the Intermodal System Plan, completed in 1999. The intermodal systems plan had three major objectives: to provide the “linking” component for Florida’s transportation system, in support of the 2020 Florida Transportation Plan; to address relevant aspects of intermodal freight and intermodal personal travel; and to serve as the foundation for future intermodal planning activities. By combining the work of the Freight Stakeholders Task Force with the information available from various FDOT modal plans, a strategic freight network was defined and specific freight system goals and objectives were identified.

The Task Force also made a recommendation to the DOT to “Conduct a Florida International Trade and Port Strategy Study to define specific trade corridor strategies and the supporting port investment priorities.” The first phase of the Florida Trade Corridor Assessment Study was completed in 2001 for FDOT. The goals of the study were to identify major trade corridors within the State and recommend improvements to the intermodal facilities along those corridors. The study defined Strategic Corridors as those that “contain identified transportation facilities that collectively provide for the movement of significant volumes of intra- and interstate domestic and international trade connecting Florida to global marketplaces.” Commodity flow data available from Reebie Associates’ TRANSEARCH database, combined with highway passenger flows available from FDOT, were used to identify the most heavily traveled highway and rail corridors for both freight and passengers. A total of eight corridors were identified.

Critical Success Factors

The Florida Freight Stakeholders Task Force successfully funded five important statewide freight improvement projects and also made recommendations – later turned into statute – to enhance the State’s freight planning program. There were several factors that led to the success of the Task Force in guiding freight planning efforts in Florida, including:

- **High-Level Champion** – As discussed earlier, the Freight Stakeholders Task Force was originally convened by then-Governor Chiles and continued by the Governor Bush administration. Governor Chiles and his staff recognized the link between efficient freight transportation and economic competitiveness and encouraged both public and private freight stakeholders to participate in the Task Force.
- **Dedicated Funding** – The Freight Stakeholders Task Force was unique in that it had a \$10 million appropriation from the State legislature to use in the advancement of freight improvement projects. The promise of “freight-only” funding and the ability to fast-track high-priority projects kept the private sector freight industry involved in the process.

The previous case study demonstrates how the involvement of the private sector can influence a state’s freight planning and programming efforts. In the case of Florida, it was relatively easy to energize the private sector freight community into action, as they had \$10 million to spend on freight-specific improvement projects. More challenging is to encourage private sector participation in states that cannot offer immediate gratification in terms of programmable projects. An example of a state that has successfully engendered private sector participation is Minnesota, described in the case study below.

Case Study – Minnesota Freight Advisory Committee

Description

The Minnesota Freight Advisory Committee was established in 1998 to ensure the needs of freight are addressed in planning, research, investment and operations of Minnesota's transportation system; establish guidelines to measure and manage the State's freight transportation needs; and to represent the needs and requirements of freight transportation to the public, elected officials and other public entities. The committee consists of representatives from private sector shippers and carriers, industry associations, academia, and economic development agencies. The MFAC is designed to be "a partnership between government and business to exchange ideas, recommend policy and actions that promote safety, productivity and sustainable freight transportation systems in Minnesota" and to ensure the needs of freight are addressed in planning, research, investment and operations of Minnesota's transportation system.

Motivation

Minnesota's freight planning activities, including the establishment of the Freight Advisory Committee, were driven by MnDOT's desire to better understand freight flows within the State and their relationship to economic competitiveness. The MnDOT freight program grew out of ISTEA, which provided some funding for intermodal programs. However, the State's freight planning program – and its activities – were driven by both internal and external champions. The Minnesota Freight Advisory Committee (MFAC) was created by the vision established by the now-former MnDOT Commissioner at a Transportation Club Logistics Forum in April 1998. In July 1998, approval for the committee's make up and structure was approved by the Freight Investment Committee, an internal policy committee comprised of senior MnDOT managers, and chaired by the Deputy Commissioner/Chief Engineer. At the same time, the freight program's external champions, led by the State Motor Carrier Association and the Chamber of Commerce, were also pushing the State to address freight transportation issues. Prior to the establishment of the Committee, the relationship between the State DOT and the private sector freight industry was viewed by some to be somewhat adversarial. With success of the MFAC, however, the DOT has also undertaken an advocacy role for freight interests and has realized that private sector freight community is as much of a DOT customer as the motoring public.

What Has the Committee Accomplished?

The Minnesota Freight Advisory Committee has been an important forum for public-private information sharing, meeting quarterly since 1998. The group has also taken an active role in the State's freight planning efforts.

A set of freight performance measures was recommended by the committee in 1999 to help MnDOT evaluate the success of the State's freight transportation system. These measures, which measure time/directness (travel time); safety; infrastructure condition; access/level of service; and socioeconomic effects were provided to MnDOT for inclusion in existing performance measurement tools. Selected freight performance measures were included in "Framework for Transportation Policies and Measures" section of MnDOT's most recent Statewide Transportation Plan.

The Freight Advisory Committee also spearheaded the development of the Minnesota Freight Facilities database, an inventory of all freight facilities within the State. Freight facilities described in the database include facilities from which freight is either originated, terminated,

transferred and/or stored, such as lake and river terminals, airfreight terminals, rail/truck terminals, pipeline terminals, and truck terminals. Facilities for manufacturing, retail, warehouse, wholesale/distribution, and grain elevators are also included. Specific information provided by the database includes physical location, contacts, capacity and production, major commodities, traffic, sales, and workforce size. In addition, additional pieces of information that are specific to certain facility types, such as runway length and material at airfreight terminals, are also being gathered. This database is being used by MnDOT to support freight planning efforts, commodity flow modeling efforts, and corridor studies as well as to evaluate freight infrastructure needs throughout the State.

Finally, the group has helped raise the profile of freight issues within the State and has effectively communicated to lawmakers the importance of freight to the State and advocated for increased funding for freight projects with the State legislature.

Critical Success Factors

There are several important factors to the success of the MFAC, including:

- **High-Level Champion** – The key element in successfully reaching out to the private sector is a high-level champion. MnDOT's champions encouraged the use of freight planning efforts as a way to:
 - Better manage highway operations (through diversion of truck freight to other modes);
 - Be more responsive to customers, particularly the business community; and
 - Enhance statewide economic competitiveness.
- **Input into the Planning and Investment Process** – The Minnesota Freight Advisory Committee was more than just a forum for discussing freight issues and concerns. Committee members were asked to take an active role in developing tools and recommendations with which to enhance the State's freight planning and investment program. Providing the private sector freight community with the opportunity to become actively involved in and influence a state's freight planning and investment program can build support for statewide freight planning efforts and encourage long-term private sector participation.

3.6 Best Practices in Multi-Jurisdictional Coordination

Freight movements are increasingly regional, national, and global in nature, often crossing traditional jurisdictional boundaries. Successful freight planning programs often require a high degree of coordination among other state agencies, other levels of government, and other state DOTs. This is especially true when planning and programming intermodal freight improvement projects, which can be complex and involve several agencies at many different levels of government. Despite the challenges surrounding multi-jurisdictional coordination, several states, including the Washington DOT, are considered models for how to successfully coordinate the planning and programming of intermodal freight projects.

Table 3.6 Summary of Multi-Jurisdictional Coordination Case Studies

Case Study	Membership	Level of Effort	Cost	Outcomes
Freight Action Strategy (FAST)	<ul style="list-style-type: none"> • Washington State DOT • Washington Freight Mobility Strategic Investment Board • Puget Sound Regional Council • Ports of Everett, Seattle, and Tacoma • 12 local cities and 2 counties • Private rail and truck carriers 	High	High	<ul style="list-style-type: none"> • Identification, prioritization, funding, and implementation of regional freight improvement projects
Mid-Atlantic Rail Operations (MAROps) Study	<ul style="list-style-type: none"> • 5 State DOTs • 3 railroads • I-95 Corridor Coalition 	High	High	<ul style="list-style-type: none"> • Identification of regional rail chokepoints • Consensus program of short-, medium-, and long-term infrastructure and information technology improvements

Case Study – FAST Corridor

Description

The Freight Action Strategy (FAST) for Everett-Seattle-Tacoma is a multi-jurisdictional partnership that began in 1996 to plan and implement projects that improve freight mobility in a corridor that stretches from Tacoma north to Everett and roughly parallels I-5 through the Puget Sound region. The partnership initially identified a series of priority grade crossing projects that were needed to improve port access, improve rail operational efficiency, and reduce neighborhood traffic impacts. What is unique about the program is the nature of the partnership activity that involves state agencies (Washington State DOT, the Freight Mobility Strategic Investment Board), the regional MPO (Puget Sound Regional Council), ports (Everett, Seattle, and Tacoma), cities (Algona, Auburn, Everett, Fife, Kent, Pacific, Puyallup, Renton, Seattle, Sumner, Tacoma, Tukwilla), counties (King County, Pierce County), and freight carriers (Burlington Northern Santa Fe Railroad, Union Pacific Railroad, Washington Truckers Association). The group identifies and prioritizes projects, prepares joint applications for funding, and cooperatively implements the projects as funding becomes available.

Motivation

For a long time and nurtured by the new freight emphasis in ISTEA, transportation organizations in the Puget Sound region have recognized that international trade is critical to the regional economy. The deep-water ports in the region were suffering from serious landside bottlenecks, many related to highway-rail grade crossings. Several stakeholders were impressed with the attention that the Alameda Corridor project was receiving at the Ports of Los Angeles/Long Beach and this created initial motivation to explore a similar type of project.

With the promise of new Federal resources to fund projects in high-priority trade corridors, stakeholders recognized an opportunity and worked hard to exploit it. Leadership from the State and regional planning agencies helped maintain this momentum.

How Was the Partnership Accomplished?

The FAST partnership grew out of recognition that in order to improve goods movement efficiency and to maintain the viability of the trade infrastructure, a systemwide solution to the corridor problems was needed. The partners needed an institutional structure for dealing with problems that no one partner “owned” but that directly or indirectly affected all of the partners. A key feature of the FAST partnership is the Memorandum of Understanding (MOU) signed by all of the participants. The MOU defines a process by which the partners will jointly develop a list of priority projects and defines expectations for how the priority projects will be funded and implemented. It recognizes that each project will fall under the jurisdiction of a particular partner but that all partners must share in the cost of all of the projects collectively. Target percentage contributions from each group of organizations are written into the MOU and it specifies that the responsible agency will apply for state and Federal funds that become available and implement projects within their jurisdiction.

The MOU does a number of things that have been very important to making FAST work. First, the MOU creates a reasonable set of expectations among the partners that each organization will accept its responsibility when necessary. This has allowed partners to contribute to projects that may not be their highest priority knowing that there is a high probability that their priority projects will be implemented as appropriate. In addition, it creates an accessible source of local matching funds that has been very successful in securing Federal grant funding, especially through the Borders and Corridors program (Section 1118/1119 of TEA-21). This local match has also been important in obtaining state funding through the Freight Mobility Strategic Investment Board. The partners also meet on a regular basis and are able to move quickly to shore up holes in a funding package if a particular source of funding falls through.

The partnership has effectively solved one of the biggest problems that has been identified in freight planning for gateway facilities – that the benefits of the project are broad but the implementation responsibilities are very local. By working together to share costs and planning responsibilities as well as benefits, the partners have defined an effective institutional model for regional freight planning.

Critical Success Factors

There are a number of factors that have made the FAST partnership work:

- **Focus on Projects, Funding, and Implementation** – FAST got specific very quickly and this has been its biggest success. The process is very focused on identifying and prioritizing projects and then building the appropriate funding package. Projects were being implemented within five years of the formation of the partnership.
- **A Clear Set of Expectations among All of the Partners** – The importance of the MOU cannot be understated. Even though it is not legally binding, it lets all of the partners know – whether they are big or small players, whether they are public or private – that everyone is in the process together. In parallel, there is a regional freight roundtable that brings all the key public and private freight stakeholders in the region together on a regular basis to

discuss freight issues. The networking among the stakeholders also contributes to the trust that underlies the MOU.

- **Involvement of All the Right Stakeholders** – All of the partners not only have a stake in the outcome – they also each have some responsibility for implementation and funding of the projects. Even smaller cities who might otherwise consider FAST a lower priority than more traditional transportation projects are brought to the table because they have jurisdiction over a particular problem or system choke point.

In addition to working with local jurisdictions to address statewide freight transportation issues, states are also active in multi-state coalitions which have also played a vital role in identifying and addressing statewide and regional transportation concerns. The following case study describes the efforts of five states, working in conjunction with the I-95 Corridor Coalition, Class I rail carriers and Amtrak, to improve freight rail service in the Mid-Atlantic region.

Case Study – Mid-Atlantic Rail Operations Study

Description

The Mid-Atlantic Rail Operations (MAROps) Study was a joint product of five states (Delaware, Maryland, New Jersey, Pennsylvania, and Virginia), the I-95 Corridor Coalition (representing these five states and nine others along the Atlantic seaboard), and three railroads (Amtrak, CSX, and Norfolk Southern). The study examined the deteriorating performance of the Mid-Atlantic's highway, aviation, and rail systems. It also identified opportunities to better utilize the region's existing rail assets; formulated a program of systemwide rail investments in all five states; and recommended a public-private partnership to fund and implement the improvements.

Motivation

The impetus behind the completion of the MAROps study came from the freight railroads operating within the region. For many years, the two Class I railroads in the Mid-Atlantic region (Norfolk Southern and CSX) along with Amtrak had been identifying infrastructure deficiencies in the region's rail system and working together to develop solutions to those deficiencies. Since Amtrak operates along freight rail right-of-way in the region, improvements to the system would require either complicated re-routing of both passenger and freight trains operating on the system or would require one or more lines to be taken out of service during repairs. Another limiting factor was funding for improvements. Though railroad productivity has improved dramatically since the industry was deregulated in 1980, the rail industry is still finding it difficult to dedicate funding to large capital improvement projects. Realizing that improving the region's rail infrastructure could have significant public benefits in the form of reduced congestion and enhanced mobility, reliability, and emergency response, the railroads approached the I-95 Corridor Coalition to act as a neutral forum through which the five Mid-Atlantic states and the three railroads could work cooperatively.

How Was the Study Prepared?

The MAROps study was guided by a project steering committee consisting of representatives from the five states and three railroads. The committee was organized and met under the auspices of the I-95 Corridor Coalition, which provided a neutral forum for the exchange of ideas and encouraged cooperation and collaboration among the different stakeholders. The project

steering committee first identified the choke points affecting rail traffic in the region. These choke points included bridges, tunnels, and track segments that have reduced capacity and operational capabilities in comparison to the rest of the regional rail system. Also included were deficient information and management systems that constrain the effective utilization of the rail system as a whole. Choke points were identified in several categories, including:

- Bridge and tunnel choke points (six total);
- Rail capacity choke points (40 total);
- Rail connection choke points (seven total);
- Rail clearance choke points (87 total); and
- Grade crossing, station, and terminal choke points (20 total).

To address these choke points, the I-95 Corridor Coalition, the participating states, and the participating railroads worked closely and cooperatively in a process that crossed jurisdictional, modal, and public-private boundaries. Together, they developed a consensus program of 71 infrastructure and information-technology improvements to be implemented over 20 years. The initial order-of-magnitude cost estimate for the improvements (not based on detailed engineering) is \$6.2 billion.

The proposed improvements cover all five Mid-Atlantic states and the District of Columbia, and they address both passenger and freight needs. The improvements are grouped according to the length of time it will take to implement them:

- Near-term projects are those that can be completed within five years and total \$2.4 billion;
- Medium-term projects are those that can be completed within 10 years and total \$1.9 billion; and
- Long-term projects are those that can be completed within 20 years and total \$1.9 billion.

In a June 25, 2003 meeting at New Jersey DOT, the states and the railroads agreed to advance a regional rail improvement program. The program would build on the MAROps initiative, but would develop a program that could be applied to the entire Coalition region and serve as a national model for other regions. Two task forces were formed: one charged with developing a preliminary funding strategy; the other, with developing an initial estimate of the benefits of the proposed regional rail improvements.

Critical Success Factors

The MAROps study was a unique public-private partnership among five state DOTs, three railroads, and the I-95 Corridor Coalition. There are several factors that contributed to its success, including:

- **Motivation of the Railroads** – Understanding the potential public benefits that could result from improvements to the region's rail infrastructure, the railroads approached the I-95 Corridor Coalition and, hence, the five Mid-Atlantic states, to work cooperatively toward solutions. The railroads also provided half of the approximately \$250,000 cost of the study, with the remaining half distributed among the five states and the I-95 Corridor Coalition.

Having the railroads not only as a willing participant, but spearheading the overall effort was a key element in its success.

- **Neutral Forum** – The I-95 Corridor Coalition contributed to the success of the MAROps study in many ways. The Coalition provided seed funding to help defray the costs of steering committee meetings and provided technical assistance to the committee as they described the region's rail network and identified key regional choke points. Most importantly, though, the I-95 Corridor Coalition provided a neutral forum through which the states and railroads could work cooperatively on this important regional issue. Participation of multi-jurisdictional coalitions is critical to the success of freight planning activities that cross jurisdictional boundaries.
- **Recognition of Public and Private Sector Benefits** – One key to the success of the MAROps was the fact that both the public and private sectors recognized the regional importance of completing such a study. State DOTs understood that eliminating key rail choke points was in their best interest, as it could lead to increased freight capacity, particularly on the region's highways; enhanced safety, reliability, and emergency response; and a positive economic benefit to the region's producers and consumers. The railroads would also benefit through increased efficiency and reliability, leading to better service and higher revenues. The public-private partnership resulting from the MAROps study has laid the groundwork for future cooperation between the states and the railroads.

4.0 Putting It All Together

4.1 Key Considerations

As can be seen from the examples provided throughout this report, there are many models for how to build and conduct an effective statewide freight planning program. This section provides some case studies of particularly interesting examples of comprehensive programs. But before presenting these, it is useful to review some of the key considerations that make for a successful program.

Organization

There is no “one size fits all” model for organizing freight planning functions. Some states have freight offices that report to a high level within the DOT while at the other extreme, successful programs have been conducted with a single staff person working on freight issues part-time. Regardless of the organizational model, most of the successful freight planning programs reach out within the DOT organization and out to MPOs and freight stakeholder groups. With limited staff, freight planning programs need to take advantage of expertise within DOT modal offices and within offices that address traffic data and forecasting, commercial vehicle operations/motor carrier management, and economics. By coordinating input from these other DOT offices, a small freight planning program can tackle big issues. Obviously, MPOs, ports, rail carriers, trucking interests can all provide needed support in terms of cooperative funding of studies and projects, data, expertise, and political support to help build a successful program.

Program Focus

The key elements that are found in the best statewide freight planning programs include the following:

- **Inventories of the System, Current Conditions, and Forecasts** – Some states start with this, trying to describe what the freight system in the State is all about and hoping this will help focus future planning on the right issues.
- **Networking with Stakeholders** – It is important to understand what groups within the DOT, other public agencies, and in the private sector care most about freight issues and to create opportunities to work together with these stakeholders to define policy, develop plans, and pursue implementation of projects. Some states have freight advisory committees. The most effective of these seem to focus on specific policy issues, mandated studies, and projects first to build trust and cooperation. Once this is established, these groups can become a more effective ongoing planning resource.
- **Developing Data and Tools** – It is difficult to do freight planning without data and forecast/impact analysis tools. Yet these data/tools need not be expensive undertakings. As described throughout this report, there are a number of readily available data resources and simple analysis techniques that can be used to get the process started.

- **Link to the Statewide Long-Range Planning Process** – Ideally, state freight plans become elements of statewide transportation plans. Treating freight transportation with the same level of emphasis as passenger transportation is important to ensure long-term commitment to the results of the freight planning process.
- **Project Definition, Prioritization, and Delivery** – Getting to projects is where many of the most successful freight planning programs have built their credibility and created the momentum to move forward.

Data and Analysis Tools

A number of states have moved early in the development of their freight planning capabilities to acquire commodity flow data, develop forecasting models, and develop impact analysis tools and performance measurement systems. Some states have invested considerable funds to conduct freight surveys and build freight databases. These techniques can be very useful and provide a wealth of information that can be mined for many years into the future.

But there are simpler approaches that are less costly. States are using data from the U.S. Commodity Flow Survey, the Highway Performance Monitoring System, the Freight Analysis Framework database, state vehicle classification count programs, weigh-in-motion data, data on motor carrier registrations and safety inspection programs, the Carload Waybill Sample, the Waterborne Commerce Statistics, all of which are either free to the user or bear minimal costs.

4.2 An Example of an Effective Statewide Freight Planning Program – California

The freight planning program in California is managed by the Office of Goods Movement in the Transportation Planning Division. The program consists of four main categories of activity:

1. Partnership building;
2. Strategic planning;
3. Project analysis; and
4. Data development and training.

The most visible activities of the Office of Goods Movement in recent years have been their leadership in the area of strategic plan development, specifically in the development of the Global Gateways Development Program (described in detail in the Best Practices section of this report).

In the area of partnership building, the Office of Goods Movement had early on taken a lead role and these efforts were less successful than had been hoped. The Office sponsored and staffed the Statewide Intermodal Goods Movement Advisory Committee (SIGMAC) which was discontinued several years ago. Created in the early days of ISTEA, SIGMAC brought freight stakeholders together across the State with high hopes. These stakeholders hoped that SIGMAC would get into programming projects and be more action-oriented. This was not the headquarters planning office's role and there was little money available to fund projects. This

lack of focus on projects and major policy issues caused interest in SIGMAC to decline until it was discontinued.

In place of SIGMAC, the Office of Goods Movement shifted to participating in smaller organizations and partnerships that are built around specific projects or issues.

In the area of project analysis, the Office of Goods Movement monitors freight issues and project concepts throughout the State and tries to ensure that appropriate Caltrans organizations at the district level are involved and advocating freight interests as the projects develop. The Office of Goods Movement funds positions for freight planners in the district offices to ensure that there is a focus on freight issues in corridor and project studies where this is appropriate. Headquarters also looks for major projects of benefit to the State where there is no other Caltrans champion.

In the area of data development and training, the Office of Goods Movement has done very little although they have been successful tapping into freight data sources collected by others.

The history of freight planning at Caltrans is informative. The Office was created after ISTEA but was discontinued in 1999 for two years until it was resurrected fairly recently. At the time there was limited interest in the governor's office on freight issues. However, in more recent years there has been a growing awareness in Caltrans and the public at large that freight issues are important in the State's transportation network. Increasingly, freight planning staff at Caltrans were receiving requests to provide answers to questions from the legislature and cabinet-level staff. The greatest driver of this new interest by key decision-makers has been the acknowledgment of very specific problems/opportunities such as growth and congestion around the Los Angeles/Long Beach ports, growing truck accidents on the State highway system, air pollution issues related to diesel emissions and through traffic. The success of the Alameda Corridor project also excited transportation officials in the State who wanted to follow up on this success and develop similar projects.

The Office of Goods Movement has a modest staff complement, although by many states' standards, the Caltrans staff is quite large. The Office of Goods Movement has 6.5 person years (PY)/year and funds eight person years in district offices. While this may look like a large program, it should be compared to the total planning staff at Caltrans headquarters (106 PY). The Office has very limited consultant resources.

The director of the office, Richard Nordahl, believes that having a separate freight office is very important to the success of the program. Nordahl believes that when you have a freight office, stakeholders on the outside of the organization pay more attention to your program.

Like most statewide freight planning programs, the Caltrans Office of Goods Movement relies on a great deal of coordination with other Caltrans offices. This helps extend the reach of the statewide freight planning program beyond what it would be able to cover if it could only rely on its own staff. A recent example involves their coordination with the Division of Rail to produce the statewide rail plan. The Division of Rail has historically focused on passenger rail issues so the Office of Goods Movement agreed to prepare the rail freight sections of the rail plan. The Office of Goods Movement also coordinates work with the Division of Aeronautics, the Division of Research, Innovation, and Technology, and with the Division of Traffic Operations. The Office of Goods Movement has also done a good deal of work with the MPOs

and Regional Transportation Planning Agencies (RTPAs – county-level agencies designated by state transportation law). The Office of Goods Movement has been an advocate for freight planning at the MPO and RTPA level and has been a promoter of freight planning studies funded by SPR grants. This has been an effective tool for forging alliances with the regional planning agencies.

Nordahl believes that states need to make a real commitment of resources to freight planning if it is to be successful. At Caltrans the Interregional Transportation Improvement Program (ITIP), which program's the State's off-the-top funding from California State transportation budget, addresses four major themes. In the last budget year, Caltrans developed a policy commitment that makes one of these themes goods movement. This should result in more programming of goods movement projects. The next step in the process will be to develop good criteria for prioritizing projects and to develop the data and tools to evaluate projects.

Nordahl has the following advice for states that are developing freight planning capability:

- **Make the freight planning program integral to your overall statewide planning process.** Goods movement needs to be visible and unique but it must also be integrated and brought into the mainstream of planning so that it receives equal consideration in the establishment of departmental priorities and the programming of funds.
- **Be sure the freight plans are multimodal.** Even if the agency does not have a clear role in non-highway mode planning and projects it is important to have a presence in these plans and projects.
- **Emphasize partnerships.** This can help expand resources available for planning and create visibility and support for the program. Partners can help with data development and assembly if budgets for these activities are limited. Coordination with MPOs, local programming agencies, and the private sector are all important.
- **Build a support system.** Do not be afraid to politicize your issues and your partnerships. Elected officials like ribbons to cut so getting to projects is important in building support. Develop technical support systems as well (data and tools).

4.3 An Example of an Effective Statewide Freight Planning Program – Washington

Washington State DOT (WSDOT) has also developed an effective freight planning program, particularly in the areas of stakeholder participation, inter-agency coordination, and freight project development and programming.

Freight planning in Washington State occurs within Office of Freight Strategy and Policy. One of the major projects of the Office of Freight Strategy and Policy has been the creation of a statewide freight implementation plan, described in the best practices section. This plan clearly lays out the goals and objectives of statewide freight planning and enunciates the specific policies that are applicable. It then details all of the major programs across the DOT and the major MPOs and lists ongoing projects that comprise the freight plan/program. In preparing the plan, the Office of Freight Strategy identifies how all the pieces fit into an overall strategic

vision of where freight should be going and how this supports the overall planning goals of the department. It also identifies gaps that should be addressed in future policy development and programming. The planning process is thus a very collaborative effort. There are two major themes that underlie the Implementation Plan:

1. There are many different customers and stakeholders in the freight process both within and outside of the department. The freight plan identifies these customers stakeholders and shows how there actions all fit together.
2. There is a matrix in the plan showing what different entities are doing in regards to freight planning and what and when different actions are occurring.

The Freight Implementation Plan is an effective unifying and coordinating document that has been used to get high-level support for freight programming from the Chief of Staff, the Secretary, and the Commission.

Stakeholder participation is a key element of WSDOT's freight planning program. Washington's program has a very "bottoms up" feel to it. Most of the project-oriented planning is occurring through the MPOs or local agencies. At the state level, the Office of Freight Strategy and Policy is responsible for overall coordination and creating coherence in the program. The state focus on freight has come about through recognition of the significance of trade to the Washington economy and a program mandated by the State legislature. In addition, the various stakeholders in the region who have recognized the importance of trade to the region have been a major driver behind the State's freight planning efforts. The FAST corridor program, described in the best practices section, came about because of a recognition on the part of the key stakeholders in the Puget Sound Region that trade was critical to the economy and that new sources of funding for freight projects were becoming available at the Federal level. The program has been very successful in attracting Federal funding and this helped provide an initial focus for the group. Now that trust has been established, partners are willing to contribute to the program even if the projects are not directly within their jurisdiction because they see how they benefit and they trust that their needs will be met. WSDOT has also supported the International Mobility and Trade Corridor (IMTC) project and has supported many of the cross border planning efforts of the Whatcom Council of Governments. Again, the recognition of the importance on trade and tourism and the availability of Federal Borders and Corridors funding were important catalysts. This program and has funded numerous border infrastructure planning studies, pilots of ITS technologies, and infrastructure improvements.

Effective inter-agency coordination is also a hallmark of the State's freight planning program. There is enormous coordination with other levels of government and organizations within the DOT. One of the activities of the Office of Freight Strategy and Policy is the coordination of a stakeholder group. This group was formed as a result of the efforts to create the Freight Implementation Plan. During this process, WSDOT convened an Executive Working Group that involved decision-makers within the department that had responsibilities for freight-related activities. This has turned into a Freight Working Group that involves the freight practitioners within the DOT. This group gets together every other month to coordinate activities including:

- Sharing information about each organization's activities;
- Resurrecting and reviewing a set of freight policies that were adopted several years ago to determine their relevance for guiding the department's freight activities; and
- Coordination.

Washington is increasingly coordinating its freight mobility planning efforts with Oregon DOT. This has been focused initially on the I-5 trade corridor project and has come about largely due to the efforts of ODOT and local stakeholders. WSDOT is also beginning to have discussions with Idaho regarding rail issues. A specific example of this is a project in Spokane called "Bridging the Valley." The objective of the project is to eliminate grade crossings and to evaluate rail consolidation opportunities. As in a number of other cases, the coordination is occurring at the MPO level with state support. A final example of multi-jurisdictional coordination is the IMTC project which has a unique governance structure that was developed to give all stakeholders a role. A major feature of this organization is that it is multi-agency including many stakeholders outside of the traditional transportation constituency (e.g., customs and immigration agencies, economic development/tourism agencies), it involves private sector business groups as well as private sector transportation providers, and it is truly bi-national.

A key measure of success of a statewide freight planning program is the degree to which it can plan and program freight improvement projects. The Washington DOT is also very active in developing freight-specific projects, as evidenced by the activities of the FAST corridor described in the best practices section. The initial program has been very successful in attracting Federal funding and has helped provide an initial focus for the group. Now that trust has been established, partners are willing to contribute to the program even if the projects are not directly within their jurisdiction because they see how they benefit and they trust that their needs will be met.

The Freight Mobility Strategic Investment Board (FMSIB) has also played an important role in providing a funding motivation and a separate funding source for freight projects. This program is coordinated with the State DOT but it is an independent agency. The FMSIB process is a competitive process and requires local matching. This independent source of funding is an important catalyst for activity but it is subject to funding availability from the legislature. Projects proposed for FMSIB funding must be on the State's strategic freight network.

The WSDOT freight planning program has been successful on two levels. First, the DOT's freight planning activities have been able to raise the visibility of freight mobility issues and create a sense of coherence at the state level. A major factor in the success of the program is having a dedicated policy office that reports directly to the Secretary and is not lost in a larger statewide planning office. This organization and his role provides access to key decision-makers across the modal offices within the DOT and allows him to play a greater role in coordination of activities. It also creates visibility for freight issues at the highest levels of the DOT.

The second level of success has to do with the degree to which the region has been successful in getting projects identified and built. WSDOT has been under enormous pressure to show quick results and has emphasized project delivery. Having a high-level point of contact within the State DOT helps coordinate resources, but the stakeholders have been particularly successful in getting projects built. The FAST program is a particularly good example of how this can be

done. Clearly, the availability of Federal funds was a spur to activate the region. But the key stakeholders recognized early on that if they could articulate a larger long-term vision of where freight mobility programs should be going that could establish a framework for identifying local projects, prioritizing these and making sure that all the stakeholders would have their needs met over time. This has allowed the group to create enormous flexibility in their use of funds across jurisdictional lines. This is discussed further with respect to the MOU and how this has effected inter-governmental coordination.

The Washington State DOT offers the following advice for states that are developing freight planning capability:

- **Freight should be identified as its own department within the DOT.** This creates a focal point for freight planning and coordination even if other departments/offices have freight planning and implementation responsibilities. John Doyle, director of the Office of Freight Policy and Strategy believes it is critical not to bury freight planning within a larger planning organization because it will have to compete for attention. In addition he thinks his position as a direct report to the Chief of Staff of the Secretary raises the profile of freight in the department. This also makes him an identified advocate with the right contacts in the DOT and this creates the vehicle for critical links to the private sector, the legislature, the MPOs, and the ports.
- **A decentralized/bottoms up approach is very effective.** As described above, much of the State DOT's focus on freight planning can be attributed to efforts of MPOs and other regional planning agencies. The State freight office is effective in playing a coordinating role and building modal/issue expertise in these offices/agencies.

Appendix A

Statewide Freight Planning Documents

Statewide Freight Planning Documents

The following tables list resources for freight planning in the following areas:

- Statewide freight plans and policy documents;
- State rail plans and other mode-specific plans;
- Single state and multi-jurisdictional trade corridor studies and programs; and
- Statewide economic development plans, studies, and programs.

This list is intended to provide examples of the types of freight planning activities being conducted by states. The information contained in the following tables is provided only as a reference and is not meant to be a comprehensive list of every freight planning activity conducted by every state. Finally, users should note that the practices described in these documents may not constitute best practices in statewide freight planning as described in this guidebook.

■ Statewide Freight Plans and Policy Documents

Table A.1 Statewide Multimodal Freight Transportation Plans and Policy Documents

State	Sponsoring Agency	Effort	Description	Web Access
California	California DOT (CalTrans)	Statewide Goods Movement Strategy, 1998	Element of the 1998 California Transportation Plan Implementation Update	http://www.dot.ca.gov/hq/tpp/offices/ogm/Final%20GM%20Strategy.pdf
	CalTrans	Global Gateways Development Program, 2002	A series of policy options and technical background for actions to enhance the capacity and efficiency of the State's goods movement system.	http://www.dot.ca.gov/hq/tpp/offices/ogm/GGDP_Final_Report.pdf
Colorado	Colorado DOT	Eastern Colorado Mobility Study, 2002	Study of the feasibility of improving existing and/or constructing future transportation corridors and intermodal facilities to enhance the mobility of freight services within and through eastern Colorado.	http://www.dot.state.co.us/EastCOMobilityStudy/FinalReport.htm
Florida	Florida DOT	Statewide Intermodal System Plan, 1999	An initial attempt to use a statewide system approach in addressing connectivity issues for all modes of transportation.	http://www.dot.state.fl.us/publictransportation/modeplans.htm
Louisiana	Louisiana Transportation Research Center	Access to Louisiana Freight Terminals: An Intermodal Transportation Planning Framework for Needs Assessment and Funding, 1999	Developed a planning framework to assess existing and future infrastructure needs for intermodal access roads and to examine innovative financing methods.	http://www.ltrc.lsu.edu/pdf/projcap00_3ss.pdf
Maine	Maine DOT, Office of Freight Transportation	Maine Integrated Freight Plan, 2002	Plan that developed a detailed freight profile for Maine and recommended specific freight improvement projects and changes to Maine's freight planning program.	http://www.state.me.us/mdot/freight/fp2003.pdf

Table A.1 Statewide Multimodal Freight Transportation Plans and Policy Documents (continued)

State	Sponsoring Agency	Effort	Description	Web Access
Maryland	Maryland DOT	Maryland Freight Mobility Plan, 2001	The plan is comprised of a profile of the State's freight transportation system and an action plan, consisting of a set of freight transportation policy initiatives and implementation strategies, designed to enhance freight planning in Maryland.	Document not available online.
Massachusetts	Massachusetts Highway Department	Massachusetts Freight Advisory Council – Identification of Massachusetts Freight Issues and Priorities, 1999	A summary of outreach efforts conducted by the Massachusetts Highway Department with members of the Massachusetts Freight Advisory Council, MPOs, and freight industry stakeholders from October 1997 to November 1998 designed to identify and prioritize freight transportation issues that inhibit efficient movement of freight within the State.	http://www.state.ma.us/mhd/planning/freight.pdf
Minnesota	Minnesota DOT	Minnesota Statewide Freight Flows Study, 2000	An analysis of statewide commodity movements using Reebie Associates data as it relates to interregional corridors, international trade, institutional structures, and economic development.	http://www.dot.state.mn.us/ofrw/FreightFlowReport/Executive%20Summary.pdf
	Minnesota DOT, FHWA	Statewide Freight Planning in Minnesota, 2000	Paper prepared for the FHWA National Freight Transportation Workshop	http://www.ops.fhwa.dot.gov/freight/pp/appendix%20J%20-%20Minn.-state.pdf
Nebraska	Nebraska Department of Roads (DOR)	Future Transportation in Nebraska 1995-2015	Nebraska Long-Range Transportation Plan, with freight information and statistics	http://www.nebraskatransportation.org/transplan/pdfs/transbook.pdf
Nevada	Nevada DOT	Nevada Statewide Intermodal Goods Movement Study, 2000	Study prepared as the freight element of the statewide long-range transportation plan.	Document not available online.

Table A.1 Statewide Multimodal Freight Transportation Plans and Policy Documents (continued)

State	Sponsoring Agency	Effort	Description	Web Access
Oregon	Oregon DOT	Freight Moves the Oregon Economy, 1999	Study to help implement the Oregon Transportation Plan and Oregon Highway Plan and to guide the activities of the Oregon Freight Advisory Committee	http://www.odot.state.or.us/intermodal-freight/reports/freightmoves/freight_moves_contents.htm
Pennsylvania	Pennsylvania DOT/Pennsylvania State Transportation Advisory Committee	Freight Movement in the Commonwealth, 1999	Study prepared to identify ways to allow freight shippers and carriers to transport goods in Pennsylvania more easily.	Document not available online.
Vermont	Vermont Agency of Transportation	Statewide Freight Study, 1999	Study to provide freight flow data that are used to preserve and improve the transportation system, to expand the tools available for freight planning efforts and to identify and prioritize future investments in the freight transportation system.	http://www.aot.state.vt.us/planning/Documents/Vermont%20Freight%20Study%20ES%20Final.pdf
Virginia	Virginia DOT	Virginia Intermodal Feasibility Study, 2000	Study to investigate the potential for new intermodal freight facilities in Virginia.	Document not available online.
Washington	Freight Mobility Strategic Investment Board	2002 Activities and Recommendations Report	Provides history of the FMSIB, status of existing FMSIB-funded projects, and recommendations for new freight improvement projects for funding by the State Legislature.	http://www.fmsib.wa.gov/documents/fmsib%20report.pdf

■ State Rail Plans and Other Mode-Specific Plans

Table A.2 State Rail Plans

State	Sponsoring Agency	Effort	Description	Web Access
Alabama	Alabama DOT, Bureau of Intermodal Transportation, Rail Section	Year 2001 Alabama Rail Update	Study of freight trends and their effect on state rail system.	http://www.dot.state.al.us/Bureau/Multi_Modal/AL_Rail_Plan.pdf
Arkansas	Arkansas State Highway and Transportation Department	Arkansas State Rail Plan, 2002	Describes the State rail system, identifies rail freight issues, and recommends programs and activities to improve railroad operations and funding in the State.	http://www.ahtd.state.ar.us/planning/F%20&%20E/SRP_2002all.pdf
Georgia	Georgia DOT	Georgia Rail Freight Plan Update 2000	Update of state rail freight plan originated in 1978.	http://www.garail.com/Pages/Reports/freightplan.pdf
Idaho	Idaho DOT	Idaho State Rail Plan Update, 1996	Described the State rail system, identified changes in the system since the last Update, and discussed system requirements. Both passenger and freight uses of the system were analyzed on a statewide and district basis. Two potential rehabilitation projects also were assessed.	http://www2.state.id.us/itd/planning/reports/railplan/railfirst.html
Iowa	Iowa DOT	Iowa State Rail System Plan, 2000	Update to satisfy Federal requirements and to serve as the modal element of Iowa's State Transportation Plan.	http://www.dot.state.ia.us/railplan/default.htm
Kansas	Kansas DOT	Kansas State Rail Plan, 2000-2001	Describes rail operations in Kansas and state funding and improvement programs.	http://kdot1.ksdot.org/public/kdot/burrrail/railwbpg/publications/ksrailpln01.pdf

Table A.2 State Rail Plans (continued)

State	Sponsoring Agency	Effort	Description	Web Access
Missouri	Missouri DOT	Missouri State Rail Plan Update	Plan that discussed the capacity of the State rail system in terms of commodities shipped and traffic density handled. It also described existing intermodal facilities and contained the results of an assessment of 20 rail lines and benefit/cost analyses of three rail assistance projects.	Document not available on line.
Montana	Montana DOT	Montana Rail Plan Update, 2000	Describes rail infrastructure and operations in the State and identifies rail and rail planning issues.	ftp://ftp.mdt.state.mt.us/planning/railplan00.pdf
New Hampshire	New Hampshire DOT	New Hampshire State Rail Plan, 2001	Presents an overview of the current status of the New Hampshire Rail System, who operates it and how it is utilized.	http://www.state.nh.us/dot/railandtransit/pdf/nhrailplan.pdf
North Carolina	North Carolina DOT	North Carolina State Rail Plan, 2000	Provides an overview of freight and passenger rail systems in the State, their funding sources, and outlines plans for corridor preservation.	http://www.bytrain.org/quicklinks/reports/railplan2001.pdf
Oregon	Oregon DOT	Oregon Rail Plan, 2001	Summarizes the State's goals and objectives, measures the State's performance to date and refines the projected costs, revenues and investment needs with regard to rail transportation of people and goods.	http://www.odot.state.or.us/rail/2001_Rail_Plan/RAILPLAN01_LOCKED.PDF
Pennsylvania/ New Jersey	Delaware Valley Regional Planning Commission	Delaware Valley Rail Freight Plan, 1999	Describes, promotes, and lays out a capital improvement program for Delaware Valley's rail network.	Not available online. To order this report, contact the Map Sales Counter at the Delaware Valley Regional Planning Commission (215.592.1800).

Table A.2 State Rail Plans (continued)

State	Sponsoring Agency	Effort	Description	Web Access
South Dakota	South Dakota DOT, Office of Railroads	South Dakota Rail Plan, 1997	South Dakota's official rail planning document; a component of the Statewide Intermodal Long-Range Plan	http://www.sddot.com/fpa/railroad/plan.asp
Tennessee	Tennessee DOT	State Rail Plan, 2002	Plan designed to provide policy, procedural, and system management guidance and assist TDOT in its efforts to redefine its role with regard to rail system projects	http://www.tdot.state.tn.us/Chief_Engineer/assistant_engineer_Planning/pub-tr~1/RailPlan/purpose.htm
Vermont	Vermont Agency of Transportation	Vermont Rail Policy Plan, 1998	Study that evaluated the overall operating structure and financial arrangements of rail services operating in Vermont. The purpose of the investigation was to provide background for the identification and formulation of rail policies that address the present, near-term, and long-range needs of Vermont's rail network	http://www.aot.state.vt.us/planning/Documents/VT%20RAIL%20POLICY.pdf
	Vermont Agency of Transportation	Vermont Rail Capital Investment Policy Plan, 2001	Plan that provides guidance for the functioning of Vermont's rail system to improve the movement of people and or goods.	http://www.aot.state.vt.us/planning/Documents/VAOT%20Rail.pdf
Wyoming	Wyoming DOT	State Rail Plan, 1996	Plan to identify lines eligible for Federal assistance under the Local Rail Freight Assistance Program, and selected one project for analysis. Also calculated the costs and benefits associated with rehabilitation of a 17.5-mile-long segment.	Document not available online.

Table A.3 Other Mode-Specific Plans

State	Sponsoring Agency	Effort	Description	Web Access
Connecticut	Connecticut DOT, Office of Intermodal Planning	Container Barge Feeder Service Study, 2001	Study to assess the need and opportunity for establishing a barge feeder service between Connecticut ports and the Port of New York/New Jersey.	http://www.dot.state.ct.us/bureau/pp/docs/Goods/Barge/BargeReport.pdf
	Connecticut DOT, Office of Intermodal Planning	Truck Stop and Rest Area Parking Study, 2001	Study to determine the current and anticipated demand for resting areas and parking for heavy trucks.	Document not available online.
Maine	Maine DOT, Office of Freight Transportation	Heavy Haul Truck Network Study, 2001	Identified a highway network to be considered as the truck route system for Maine; used to enhance the State's ability to target pavement improvement resources.	Document not available online.
Ohio	Ohio DOT	Impact of Trucks on Ohio's Roadways, 2001	Study to determine how readily available freight databases could: provide information on freight flows; forecast freight truck flows on Ohio's roadways; and be used to assess its impact on those roadways.	http://www.dot.state.oh.us/planning/Studies/Freight/freight_default.htm
Vermont	Vermont Agency of Transportation (VTrans)	Vermont Air Policy Plan, 1998	Addresses State policy relative to the 10 State-owned airports plus Burlington International, the largest airport in the State.	http://www.aot.state.vt.us/planning/studies.htm
		Truck Network Analysis	Investigates and quantifies certain characteristics of selected large trucks and their operational characteristics within common geometric conditions found along Vermont's Primary and Minor Arterials.	

■ Trade Corridor Studies and Programs

Table A.4 Trade Corridor Studies and Programs (Single State)

State	Sponsoring Agency	Effort	Description	Web Access
Connecticut	Connecticut DOT, Office of Intermodal Planning	Southwest Corridor Commodity Flow Study, 2000	Study to identify the nature, extent, and seriousness of the transportation issues affecting the movement of goods in the southwest corner of the State, focusing on I-95.	Document not available online.
Florida	Florida DOT	Florida Trade Corridor Assessment Study, 2001	Study to identify major trade corridors within the State and recommend improvements to the intermodal facilities along those corridors.	Document not available online.
Georgia	Georgia DOT	Central Georgia Corridor (HPC6) Study	Study of a strategic freight corridor connecting the barge river Port of Columbus and the Port of Savannah.	http://www.dot.state.ga.us/dot/plan-prog/planning/studies/centralgeorgia/index.shtml
Minnesota	Minnesota DOT	Interregional Corridor Study, 1999	Identifies economic corridors in the State to be used in planning of state transportation plan.	http://www.oim.dot.state.mn.us/projects/irc/
New Jersey	New Jersey DOT	Portway International Intermodal Corridor Program	Portway is a series of projects that will strengthen access to and among the Newark-Elizabeth air and seaport complex, intermodal rail facilities, trucking and warehouse facilities and the region's highway system.	http://www.state.nj.us/transportation/works/portway/
Vermont	Vermont Agency of Transportation (VTrans)	Origin-Destination and Goods Movement Truck Study for the U.S. 4 Corridor	Presents results of an analysis of origins and destinations of trucks using U.S. 4 in Vermont.	Available from VTrans Policy and Planning Division.

Table A.5 Trade Corridor Studies and Programs (Multi-Jurisdictional Coalitions)

States	Effort	Description	Web Access
Alabama, Arizona, California, Florida, Louisiana, Mississippi, New Mexico, Texas	National I-10 Freight Corridor Study, 2003	An assessment of the need for, and feasibility of, a broad range of options to facilitate the movement of goods along the I-10 corridor.	http://www.i10freightstudy.org
Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, Vermont, Virginia	I-95 Corridor Coalition: Intermodal Strategic Plan, 2001, and Mid-Atlantic Rail Operations Study, 2001	A regional partnership of major public and private transportation agencies, toll authorities and industry associations that have come together to address ITS solutions to shared transportation problems and challenges.	http://www.i95coalition.org/about.htm
Maine, Michigan, New York, Vermont, with Canadian provinces of Labrador/Newfoundland, New Brunswick, Nova Scotia, Ontario, Prince Edward Island, and Quebec	Eastern Border Transportation Coalition: Final Report – <i>Truck Freight Crossing the Canada-U.S. Border: An Analysis of the Cross-Border Component of the 1999 National Roadside Survey</i>	An assessment of the Canada-U.S. component of Canada's 1999 National Roadside Study (NSR) of trucks traveling throughout Canada.	http://www.ebtc.info
Arizona, Idaho, Montana, Nevada, Utah, along with Canada and Mexico	Canamex Corridor Coalition: Final Canamex Corridor Plan, 2001	A transportation, commerce and communications development plan with the goals of stimulating investment and economic growth in the region and enhancing safety and efficiency within the corridor	http://www.canamex.org/
Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Mississippi, Missouri, North Carolina, Oklahoma, South Carolina, Puerto Rico, Tennessee, Texas, Virginia, and West Virginia, along with FHWA	Latin America Trade and Transportation Study (LATTS)	Identify trade opportunities with Latin America, evaluate infrastructure investments needed to support growth in international trade, and develop strategies to guide infrastructure investments.	http://www.wilbursmith.com/latts/

■ Statewide Economic Development Plans, Studies and Programs

Table A.6 Economic Development Plans, Studies, and Programs

State	Sponsoring Agency	Effort	Description	Web Access
Florida	Florida Chamber of Commerce Foundation	Transportation Cornerstone Florida, 1999	Report that identifies key industry clusters of importance to the State.	http://www.flochamber.com/home/transportation_cornerstone.asp
Michigan	Michigan DOT	Freight Economic Development Program	The Freight Services and Safety Division of MDOT offers financial assistance in the form of loan/grants covering up to 50 percent of the rail freight portion of the project when the rail improvement facilitates economic development.	http://www.mdot.state.mi.us/fss/index.cfm?page=econom icdev
Vermont	Vermont Agency of Transportation (VTrans)	The Economic Impact of Vermont's Public-Use Airports	Measures the economic activities that occur at Vermont's Public-use airports along with the circulation on the State economy of the business income and personal income earned at the airports.	http://www.aot.state.vt.us/planning/studies.htm
Wisconsin	Wisconsin DOT	Transportation Alternatives for Economic Development in Wisconsin, 1994	Report completed to support Translinks21, Wisconsin's statewide intermodal transportation plan.	http://ntl.bts.gov/DOCS/ted.html